SEQUENCE LISTING

<110>   Hartley, James L.

        Brasch, Michael A.

        Temple, Gary F.

        Cheo, David


<120>   Compositions and Methods for Use in Recombinational
        Cloning of Nucleic Acids


<130>   0942.4680003


<140>   09/517,466

<141>   2000-03-02


<150>   US 60/122,389

<151>   1999-03-02


<150>   US 60/126,049

<151>   1999-03-23


<150>   US 60/136,744

<151>   1999-05-28


<160>   285


<170>   PatentIn version 3.1


<210>   1

<211>   25

<212>   DNA

<213>   Artificial Sequence

<220>

<223> attB1 site

<400> 1
acaagtttgt acaaaaaagc aggct                                              25


<210> 2

<211> 25

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2 site

<400> 2
acccagcttt cttgtacaaa gtggt                                              25


<210> 3

<211> 233

<212> DNA

<213> Artificial Sequence


<220>

<223> attP1 site

<400> 3
tacaggtcac taataccatc taagtagttg attcatagtg actggatatg ttgtgtttta        60

cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat atttatatca       120

ttttacgttt ctcgttcagc ttttttgtac aaagttggca ttataaaaaa gcattgctca       180

tcaatttgtt gcaacgaaca ggtcactatc agtcaaaata aaatcattat ttg              233


<210> 4

<211> 233

<212> DNA

<213> Artificial Sequence

<220>

<223>  attP2

<400>  4
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa      60

tgctttctta taatgccaac tttgtacaag aaagctgaac gagaaacgta aaatgatata     120

aatatcaata tattaaatta gattttgcat aaaaaacaga ctacataata ctgtaaaaca     180

caacatatcc agtcactatg aatcaactac ttagatggta ttagtgacct gta            233


<210>  5

<211>  125

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attL1

<400>  5
acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta      60

aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca     120

ctatg                                                                 125


<210>  6

<211>  135

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attL2

<400>  6
gcaggtcgac catagtgact ggatatgttg tgttttacag tattatgtag tctgtttttt      60

atgcaaaatc taatttaata tattgatatt tatatcattt tacgtttctc gttcagcttt     120

cttgtacaaa gtggt                                                       135


<210>  7

<211>  100

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attR1

<400>   7
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa        60

tgcttttttta taatgccaac tttgtacaaa aaagcaggct                            100


<210>   8

<211>   100

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attR2

<400>   8
caaataatga ttttattttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa        60

tgctttctta taatgccaac tttgtacaag aaagctgggt                            100


<210>   9

<211>   15

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   15 bp core region of attB, attP, attL and attR

<400>   9
gctttttttat actaa                                                          15


<210>   10

<211>   30

<212>   DNA

<213>   Artificial Sequence

<220>

<223>  attL5

<400>  10
agcctgcttt attatactaa gttggcatta                                    30

<210>  11

<211>  30

<212>  DNA

<213>  Artificial Sequence

<220>

<223>  attL6

<400>  11
agcctgcttt tttatattaa gttggcatta                                    30

<210>  12

<211>  28

<212>  DNA

<213>  Artificial Sequence

<220>

<223>  attB1.6

<400>  12
ggggacaact ttgtacaaaa aagttggc                                      28

<210>  13

<211>  29

<212>  DNA

<213>  Artificial Sequence

<220>

<223>  attB2.2

<400>  13
ggggacaact ttgtacaaga aagctgggt                                     29

<210> 14

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2.10

<400> 14
ggggacaact ttgtacaaga aagttgggt                                          29


<210> 15

<211> 25

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2(-1) Oligonucleotide Primer

<220>

<221> misc_feature

<222> (25)..(25)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 15
cccagctttc ttgtacaaag tggtn                                              25


<210> 16

<211> 24

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2(-2) Oligonucleotide Primer

<220>

<221> misc_feature

<222> (24)..(24)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 16
ccagctttct tgtacaaagt ggtn                                    24


<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2(-3) Oligonucleotide Primer

<220>

<221> misc_feature

<222> (23)..(23)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 17
cagctttctt gtacaaagtg gtn                                     23


<210> 18

<211> 22

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2(-4) Oligonucleotide Primer

<220>

<221> misc_feature

<222> (22)..(22)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 18
agctttcttg tacaaagtgg tn                                       22


<210> 19

<211> 26

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (26)..(26)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 19
acaagtttgt acaaaaaagc aggctn                                   26


<210> 20

<211> 26

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (26)..(26)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
primer can have variable length up to maximum of
about 100 kbp; some residues may be missing


<400> 20
accactttgt acaagaaagc tgggtn                                    26


<210> 21

<211> 19

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (19)..(19)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
primer can have variable length up to maximum of
about 100 kbp; some residues may be missing


<400> 21
tgtacaaaaa agcaggctn                                            19


<210> 22

<211> 19

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (19)..(19)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 22
tgtacaagaa agctgggtn                                              19


<210> 23

<211> 16

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (16)..(16)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 23
acaaaaaagc aggctn                                                 16


<210> 24

<211> 16

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (16)..(16)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of

about 100 kbp; some residues may be missing


```
<400>  24
acaagaaagc tgggtn                                                    16
```


```
<210>  25
```

```
<211>  13
```

```
<212>  DNA
```

```
<213>  Artificial Sequence
```


```
<220>
```

```
<223>  attB1- and attB2-derived Oligonucleotide Primer
```

```
<220>
```

```
<221>  misc_feature
```

```
<222>  (13)..(13)
```

```
<223>  'n' can be any nucleotide (A, T, C, G or U), and
       primer can have variable length up to maximum of
       about 100 kbp; some residues may be missing
```


```
<400>  25
aaaaagcagg ctn                                                       13
```


```
<210>  26
```

```
<211>  13
```

```
<212>  DNA
```

```
<213>  Artificial Sequence
```


```
<220>
```

```
<223>  attB1- and attB2-derived Oligonucleotide Primer
```

```
<220>
```

```
<221>  misc_feature
```

```
<222>  (13)..(13)
```

```
<223>  'n' can be any nucleotide (A, T, C, G or U), and
       primer can have variable length up to maximum of
       about 100 kbp; some residues may be missing
```

<400> 26
agaaagctgg gtn                                                                    13


<210> 27

<211> 12

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (12)..(12)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 27
aaaagcaggc tn                                                                     12


<210> 28

<211> 12

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1- and attB2-derived Oligonucleotide Primer

<220>

<221> misc_feature

<222> (12)..(12)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing


<400> 28

gaaagctggg tn                                                        12

<210>   29

<211>   11

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attB1- and attB2-derived Oligonucleotide Primer

<220>

<221>   misc_feature

<222>   (11)..(11)

<223>   'n' can be any nucleotide (A, T, C, G or U), and
        primer can have variable length up to maximum of
        about 100 kbp; some residues may be missing


<400>   29
aaagcaggct n                                                         11


<210>   30

<211>   11

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attB1- and attB2-derived Oligonucleotide Primer

<220>

<221>   misc_feature

<222>   (11)..(11)

<223>   'n' can be any nucleotide (A, T, C, G or U), and
        primer can have variable length up to maximum of
        about 100 kbp; some residues may be missing


<400>   30
aaagctgggt n                                                         11

<210> 31

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1 Oligonucleotide Primer

<400> 31
ggggacaagt ttgtacaaaa aagcaggct                                    29


<210> 32

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2 Oligonucleotide Primer

<400> 32
ggggaccact ttgtacaaga aagctgggt                                    29


<210> 33

<211> 27

<212> DNA

<213> Artificial Sequence


<220>

<223> XhoI Insertion Primer

<220>

<221> misc_feature

<222> (4)..(12)

<223> 'n' can be any nucleotide (A, T, C, G or U), and
      primer can have variable length up to maximum of
      about 100 kbp; some residues may be missing

<220>

<221>   misc_feature

<222>   (22)..(27)

<223>   'n' can be any nucleotide (A, T, C, G or U), and
       primer can have variable length up to maximum of
       about 100 kbp; some residues may be missing


<400>   33
atgnnnnnnn nntaactcga gnnnnnn                                          27


<210>   34

<211>   30

<212>   PRT

<213>   Artificial Sequence


<220>

<223>   attB1 fused into a His6 fusion vector

<400>   34

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser Leu Tyr
1               5                   10                  15


Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met
            20                  25                  30


<210>   35

<211>   11

<212>   PRT

<213>   Artificial Sequence


<220>

<223>   attB Amino Acid Sequence

<400>   35

Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe
1               5                   10


<210>   36

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL1 PCR Primer

<400> 36
ggggagcctg ctttttttgta caaagttggc attataaaaa agcattgc        48


<210> 37

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL2 PCR Primer

<400> 37
ggggagcctg ctttcttgta caaagttggc attataaaaa agcattgc        48


<210> 38

<211> 22

<212> DNA

<213> Artificial Sequence


<220>

<223> attL Right PCR Primer

<400> 38
tgttgccggg aagctagagt aa        22


<210> 39

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223>  attR1 PCR Primer

<400>  39
ggggacaagt tgtacaaaa aagctgaacg agaaacgtaa aat                           43


<210>  40

<211>  43

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attR2

<400>  40
ggggacaagt tgtacaaga aagctgaacg agaaacgtaa aat                           43


<210>  41

<211>  22

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attR Right

<400>  41
cagacggcat gatgaacctg aa                                                 22


<210>  42

<211>  29

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  B1-Hgb oligonucleotide

<400>  42
ggggacaagt tgtacaaaa aagcaggct                                           29

<210> 43

<211> 28

<212> DNA

<213> Artificial Sequence


<220>

<223> B2-Hgb oligonucleotide

<400> 43
ggggaccact ttgtacaaga aagctggg                                    28


<210> 44

<211> 18

<212> DNA

<213> Artificial Sequence


<220>

<223> 18B1-Hgb oligonucleotide

<400> 44
tgtacaaaaa agcaggct                                               18


<210> 45

<211> 18

<212> DNA

<213> Artificial Sequence


<220>

<223> 18B2-Hgb oligonucleotide

<400> 45
tgtacaagaa agctgggt                                               18


<210> 46

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> 15B1-Hgb oligonucleotide

<400> 46
acaaaaaagc aggct                                    15


<210> 47

<211> 15

<212> DNA

<213> Artificial Sequence


<220>

<223> 15B2-Hgb oligonucleotide

<400> 47
acaagaaagc tgggt                                    15


<210> 48

<211> 12

<212> DNA

<213> Artificial Sequence


<220>

<223> 12B1-Hgb oligonucleotide

<400> 48
aaaaagcagg ct                                       12


<210> 49

<211> 12

<212> DNA

<213> Artificial Sequence


<220>

<223> 12B2-Hgb oligonucleotide

<400> 49
agaaagctgg gt                                       12

<210> 50

<211> 11

<212> DNA

<213> Artificial Sequence


<220>

<223> 11B1-Hgb oligonucleotide

<400> 50
aaaagcaggc t                                                    11


<210> 51

<211> 11

<212> DNA

<213> Artificial Sequence


<220>

<223> 11B2-Hgb oligonucleotide

<400> 51
gaaagctggg t                                                    11


<210> 52

<211> 10

<212> DNA

<213> Artificial Sequence


<220>

<223> 10B1-Hgb oligonucleotide

<400> 52
aaagcaggct                                                      10


<210> 53

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<223>  10B2-Hgb oligonucleotide

<400>  53
aaagctgggt                                                                    10


<210>  54

<211>  29

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attB1 adapter

<400>  54
ggggacaagt ttgtacaaaa aagcaggct                                               29


<210>  55

<211>  29

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attB2 adapter

<400>  55
ggggaccact ttgtacaaga aagctgggt                                               29


<210>  56

<211>  22

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  -5' -Hgb oligonucleotide

<400>  56
gtcactagcc tgtggagcaa ga                                                      22

<210> 57

<211> 22

<212> DNA

<213> Artificial Sequence


<220>

<223> -3' -Hgb oligonucleotide

<400> 57
aggatggcag agggagacga ca                                              22


<210> 58

<211> 15

<212> DNA

<213> Artificial Sequence


<220>

<223> 15 bp Core Region of attB, attP, attL and attR

<400> 58
gcttttttat actaa                                                     15


<210> 59

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL0 PCR Primer

<400> 59
ggggagcctg cttttttata ctaagttggc attataaaaa agcattgc                 48


<210> 60

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> attLT1A PCR Primer

<400> 60
ggggagcctg ctttattata ctaagttggc attataaaaa agcattgc                    48


<210> 61

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT1C PCR Primer

<400> 61
ggggagcctg ctttcttata ctaagttggc attataaaaa agcattgc                    48


<210> 62

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT1G PCR Primer

<400> 62
ggggagcctg ctttgttata ctaagttggc attataaaaa agcattgc                    48


<210> 63

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT2A PCR Primer

<400> 63
ggggagcctg cttttatata ctaagttggc attataaaaa agcattgc                    48

<210> 64

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT2C PCR Primer

<400> 64
ggggagcctg cttttctata ctaagttggc attataaaaa agcattgc                48


<210> 65

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT2G PCR Primer

<400> 65
ggggagcctg cttttgtata ctaagttggc attataaaaa agcattgc                48


<210> 66

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT3A PCR Primer

<400> 66
ggggagcctg ctttttaata ctaagttggc attataaaaa agcattgc                48


<210> 67

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223>  attLT3C PCR Primer

<400>  67
ggggagcctg cttttttcata ctaagttggc attataaaaa agcattgc                    48


<210>  68

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLT3G PCR Primer

<400>  68
ggggagcctg ctttttgata ctaagttggc attataaaaa agcattgc                    48


<210>  69

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLA4C PCR Primer

<400>  69
ggggagcctg ctttttttcta ctaagttggc attataaaaa agcattgc                    48


<210>  70

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLA4G PCR Primer

<400>  70
ggggagcctg ctttttttgta ctaagttggc attataaaaa agcattgc                    48

<210> 71

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLA4T PCR Primer

<400> 71
ggggagcctg cttttttttta ctaagttggc attataaaaa agcattgc                    48


<210> 72

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT5A PCR Primer

<400> 72
ggggagcctg ctttttttaaa ctaagttggc attataaaaa agcattgc                    48


<210> 73

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLT5C PCR Primer

<400> 73
ggggagcctg ctttttttaca ctaagttggc attataaaaa agcattgc                    48


<210> 74

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223>  attLT5G PCR Primer

<400>  74
ggggagcctg cttttttaga ctaagttggc attataaaaa agcattgc                    48


<210>  75

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLA6C PCR Primer

<400>  75
ggggagcctg cttttttatc ctaagttggc attataaaaa agcattgc                    48


<210>  76

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLA6G PCR Primer

<400>  76
ggggagcctg cttttttatg ctaagttggc attataaaaa agcattgc                    48


<210>  77

<211>  48

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attLA6T PCR Primer

<400>  77
ggggagcctg cttttttatt ctaagttggc attataaaaa agcattgc                    48

<210> 78

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLC7A PCR Primer

<400> 78
ggggagcctg cttttttata ataagttggc attataaaaa agcattgc          48


<210> 79

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLC7G PCR Primer

<400> 79
ggggagcctg cttttttata gtaagttggc attataaaaa agcattgc          48


<210> 80

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attLC7T PCR Primer

<400> 80
ggggagcctg cttttttata ttaagttggc attataaaaa agcattgc          48


<210> 81

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> attL8

<400> 81
gggggagccta cttttttata ctaagttggc attataaaaa agcattgc                48


<210> 82

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL9

<400> 82
gggggagcctg cctttttata ctaagttggc attataaaaa agcattgc                48


<210> 83

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL10

<400> 83
gggggagcctg cttctttata ctaagttggc attataaaaa agcattgc                48


<210> 84

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL14

<400> 84
gggggagcctg cttttttata ccaagttggc attataaaaa agcattgc                48

<210> 85

<211> 48

<212> DNA

<213> Artificial Sequence


<220>

<223> attL15

<400> 85
ggggagcctg cttttttata ctaggttggc attataaaaa agcattgc                48


<210> 86

<211> 30

<212> DNA

<213> Artificial Sequence


<220>

<223> attL0

<400> 86
agcctgcttt tttatactaa gttggcatta                                    30


<210> 87

<211> 30

<212> DNA

<213> Artificial Sequence


<220>

<223> attL5

<400> 87
agcctgcttt attatactaa gttggcatta                                    30


<210> 88

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223>  attL6

<400>  88
agcctgcttt tttatattaa gttggcatta                                    30


<210>  89

<211>  30

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attL13

<400>  89
agcctgcttt tttatgctaa gttggcatta                                    30


<210>  90

<211>  30

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attL14

<400>  90
agcctgcttt tttataccaa gttggcatta                                    30


<210>  91

<211>  30

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attL15

<400>  91
agcctgcttt tttatactag gttggcatta                                    30

<210> 92

<211> 21

<212> DNA

<213> Artificial Sequence


<220>

<223> Consensus sequence for integrase core-binding

<220>

<221> misc_feature

<222> (7)..(8)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<220>

<221> misc_feature

<222> (10)..(12)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<220>

<221> misc_feature

<222> (14)..(15)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<400> 92
caacttnntn nnannaagtt g                                                    21


<210> 93

<211> 25

<212> DNA

<213> Artificial Sequence


<220>

<223> attB0

<400> 93
tcaagttagt ataaaaaagc aggct 25

<210> 94

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> attB1

<400> 94
ggggacaagt ttgtacaaaa aagcaggct 29

<210> 95

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> attB2

<400> 95
ggggaccact ttgtacaaga aagctgggt 29

<210> 96

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> attB2.1

<400> 96
ggggaacact ttgtacaaga aagctgggt 29

<210> 97

<211> 29

&lt;212&gt;  DNA

&lt;213&gt;  Artificial Sequence


&lt;220&gt;

&lt;223&gt;  attB2.2

&lt;400&gt;  97
ggggacaact ttgtacaaga aagctgggt                                    29


&lt;210&gt;  98

&lt;211&gt;  29

&lt;212&gt;  DNA

&lt;213&gt;  Artificial Sequence


&lt;220&gt;

&lt;223&gt;  attB2.3

&lt;400&gt;  98
ggggacccct ttgtacaaga aagctgggt                                    29


&lt;210&gt;  99

&lt;211&gt;  29

&lt;212&gt;  DNA

&lt;213&gt;  Artificial Sequence


&lt;220&gt;

&lt;223&gt;  attB2.4

&lt;400&gt;  99
ggggaccaat ttgtacaaga aagctgggt                                    29


&lt;210&gt;  100

&lt;211&gt;  29

&lt;212&gt;  DNA

&lt;213&gt;  Artificial Sequence


&lt;220&gt;

<223> attB2.5

<400> 100
ggggaccacg ttgtacaaga aagctgggt                                          29


<210> 101

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2.6

<400> 101
ggggaccact gtgtacaaga aagctgggt                                          29


<210> 102

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2.7

<400> 102
ggggaccact tggtacaaga aagctgggt                                          29


<210> 103

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2.8

<400> 103
ggggaccact ttttacaaga aagctgggt                                          29


<210> 104

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1 Amplification Site

<400> 104
ggggacaagt ttgtacaaaa aagcaggct                                    29


<210> 105

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB1.6 Amplification Site

<400> 105
ggggacaact ttgtacaaaa aagttggct                                    29


<210> 106

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2 Amplification Site

<400> 106
ggggaccact ttgtacaaga aagctgggt                                    29


<210> 107

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223>  attB2.10 Amplification Site

<400>  107
ggggacaact ttgtacaaga aagttgggt                                          29


<210>  108

<211>  29

<212>  DNA

<213>  Artificial Sequence   .


<220>

<223>  attB1 PCR Primer

<400>  108
ggggacaagt ttgtacaaaa aagcaggct                                          29


<210>  109

<211>  29

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attB1n16-20 PCR Primer

<220>

<221>  misc_feature

<222>  (20)..(24)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<400>  109
ggggacaagt ttgtacaaan nnnnaggct                                          29


<210>  110

<211>  29

<212>  DNA

<213>  Artificial Sequence

<220>

<223> attB1n21-25 PCR Primer

<220>

<221> misc_feature

<222> (25)..(29)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<400> 110
ggggacaagt ttgtacaaaa aagcnnnnn                                29


<210> 111

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2 PCR Primer

<400> 111
ggggaccact ttgtacaaga aagctgggt                               29


<210> 112

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2n16-20 PCR Primer

<220>

<221> misc_feature

<222> (20)..(24)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<400> 112

```
ggggaccact ttgtacaagn nnnntgggt                                    29
```

<210> 113

<211> 29

<212> DNA

<213> Artificial Sequence


<220>

<223> attB2n21-25 PCR Primer

<220>

<221> misc_feature

<222> (25)..(29)

<223> 'n' can be any nucleotide (A, T, C, G or U)


```
<400> 113
ggggaccact ttgtacaaga aagcnnnnn                                    29
```

<210> 114

<211> 14

<212> DNA

<213> Artificial Sequence


<220>

<223> 12bp attB1 forward gene-specific primer

<220>

<221> misc_feature

<222> (13)..(14)

<223> 'n' can be any nucleotide (A, T, C, G or U)


```
<400> 114
aaaaagcagg ctnn                                                    14
```

<210> 115

<211> 13

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   12bp attB2 reverse gene-specific primer

<220>

<221>   misc_feature

<222>   (13)..(13)

<223>   'n' can be any nucleotide (A, T, C, G or U)


<400>   115
agaaagctgg gtn                                                        13


<210>   116

<211>   29

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attB1 adapter primer

<400>   116
ggggacaagt ttgtacaaaa aagcaggct                                       29


<210>   117

<211>   29

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   attB2 adapter primer

<400>   117
ggggaccact ttgtacaaga aagctgggt                                       29


<210>   118

<211> 2717

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR1A

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (321)..(626)

<223> ccdB


<220>

<221> gene

<222> (655)..(754)

<223> attL2


<220>

<221> gene

<222> (877)..(1686)

<223> KmR


<220>

<221> gene

<222> (1791)..(2364)

<223> ori

<400> 118

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctttaa aggaaccaat     180

tcagtcgact ggatccggta ccgaattcgc ttactaaaag ccagataaca gtatgcgtat     240

ttgcgcgctg attttttgcgg tataagaata tatactgata tgtatacccg aagtatgtca     300

aaaagaggtg tgcttctaga atgcagttta aggtttacac ctataaaaga gagagccgtt     360

atcgtctgtt tgtggatgta cagagtgata ttattgacac gcccgggcga cggatagtga     420

tcccccctggc cagtgcacgt ctgctgtcag ataaagtctc ccgtgaactt tacccggtgg     480

tgcatatcgg ggatgaaagc tggcgcatga tgaccaccga tatggccagt gtgccggtct     540

ccgttatcgg ggaagaagtg gctgatctca gccaccgcga aaatgacatc aaaaacgcca     600

ttaacctgat gttctgggga atatagaatt cgcggccgca ctcgagatat ctagacccag     660

ctttcttgta caaagttggc attataagaa agcattgctt atcaatttgt tgcaacgaac     720

aggtcactat cagtcaaaat aaaatcatta tttgccatcc agctgcagct ctggcccgtg     780

tctcaaaatc tctgatgtta cattgcacaa gataaaaata tatcatcatg aacaataaaa     840

ctgtctgctt acataaacag taatacaagg ggtgttatga gccatattca cgggaaacg     900

tcgaggccgc gattaaattc caacatggat gctgatttat atgggtataa atgggctcgc     960

gataatgtcg ggcaatcagg tgcgacaatc tatcgcttgt atgggaagcc cgatgcgcca    1020

gagttgtttc tgaaacatgg caaaggtagc gttgccaatg atgttacaga tgagatggtc    1080

agactaaact ggctgacgga atttatgcct cttccgacca tcaagcattt tatccgtact    1140

cctgatgatg catggttact caccactgcg atccccggaa aaacagcatt ccaggtatta    1200

gaagaatatc ctgattcagg tgaaaatatt gttgatgcgc tggcagtgtc cctgcgccgg    1260

ttgcattcga ttcctgtttg taattgtcct tttaacagcg atcgcgtatt tcgtctcgct    1320

caggcgcaat cacgaatgaa taacggtttg gttgatgcga gtgattttga tgacgagcgt    1380

aatggctggc ctgttgaaca agtctggaaa gaaatgcata aacttttgcc attctcaccg    1440

gattcagtcg tcactcatgg tgatttctca cttgataacc ttattttttga cgaggggaaa    1500

ttaataggtt gtattgatgt tggacgagtc ggaatcgcag accgatacca ggatcttgcc    1560

atcctatgga actgcctcgg tgagttttct ccttcattac agaaacggct ttttcaaaaa    1620

tatggtattg ataatcctga tatgaataaa ttgcagtttc atttgatgct cgatgagttt    1680

ttctaatcag aattggttaa ttggttgtaa cattattcag attgggcccc gttccactga    1740

gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag atccttttttt tctgcgcgta    1800

atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg tggtttgttt gccggatcaa    1860
```

```
gagctaccaa ctctttttcc gaaggtaact ggcttcagca gagcgcagat accaaatact   1920

gttcttctag tgtagccgta gttaggccac cacttcaaga actctgtagc accgcctaca   1980

tacctcgctc tgctaatcct gttaccagtg gctgctgcca gtggcgataa gtcgtgtctt   2040

accgggttgg actcaagacg atagttaccg gataaggcgc agcggtcggg ctgaacgggg   2100

ggttcgtgca cacagcccag cttggagcga acgacctaca ccgaactgag atacctacag   2160

cgtgagctat gagaaagcgc cacgcttccc gaagggagaa aggcggacag gtatccggta   2220

agcggcaggg tcggaacagg agagcgcacg agggagcttc caggggggaaa cgcctggtat   2280

ctttatagtc ctgtcgggtt cgccacctc tgacttgagc gtcgattttt gtgatgctcg   2340

tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg ccttttacg gttcctggcc   2400

ttttgctggc cttttgctca catgttcttt cctgcgttat ccctgattc tgtggataac   2460

cgtattaccg ctagcatgga tctcggggac gtctaactac taagcgagag tagggaactg   2520

ccaggcatca aataaaacga aaggctcagt cggaagactg ggcctttcgt tttatctgtt   2580

gtttgtcggt gaacgctctc ctgagtagga caaatccgcc gggagcggat ttgaacgttg   2640

tgaagcaacg gcccggaggg tggcgggcag gacgcccgcc ataaactgcc aggcatcaaa   2700

ctaagcagaa ggccatc                                                  2717
```

<210> 119

<211> 2718

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR2B

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (322)..(627)

<223> ccdB

<220>

<221> gene

<222> (656)..(755)

<223> attL2


<220>

<221> gene

<222> (878)..(1687)

<223> KmR


<220>

<221> gene

<222> (1792)..(2365)

<223> ori


<400> 119

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60
gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120
aagcaatgct tttttataat gccaactttg tacaaaaaag caggctggcg ccggaaccaa     180
ttcagtcgac tggatccggt accgaattcg cttactaaaa gccagataac agtatgcgta     240
tttgcgcgct gatttttgcg gtataagaat atatactgat atgtataccc gaagtatgtc     300
aaaaagaggt gtgcttctag aatgcagttt aaggtttaca cctataaaag agagagccgt     360
tatcgtctgt ttgtggatgt acagagtgat attattgaca cgcccgggcg acggatggtg     420
atccccctgg ccagtgcacg tctgctgtca gataaagtct cccgtgaact ttacccggtg     480
gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg atatggccag tgtgccggtc     540
tccgttatcg gggaagaagt ggctgatctc agccaccgcg aaaatgacat caaaaacgcc     600
attaacctga tgttctgggg aatatagaat tcgcggccgc actcgagata tctagaccca     660
gctttcttgt acaaagttgg cattataaga aagcattgct tatcaatttg ttgcaacgaa     720
caggtcacta tcagtcaaaa taaaatcatt atttgccatc cagctgcagc tctggcccgt     780
gtctcaaaat ctctgatgtt acattgcaca agataaaaat atatcatcat gaacaataaa     840
actgtctgct tacataaaca gtaatacaag gggtgttatg agccatattc aacgggaaac     900
```

```
gtcgaggccg cgattaaatt ccaacatgga tgctgattta tatgggtata aatgggctcg      960

cgataatgtc gggcaatcag gtgcgacaat ctatcgcttg tatgggaagc ccgatgcgcc     1020

agagttgttt ctgaaacatg gcaaaggtag cgttgccaat gatgttacag atgagatggt     1080

cagactaaac tggctgacgg aatttatgcc tcttccgacc atcaagcatt ttatccgtac     1140

tcctgatgat gcatggttac tcaccactgc gatccccgga aaaacagcat tccaggtatt     1200

agaagaatat cctgattcag gtgaaaatat tgttgatgcg ctggcagtgt tcctgcgccg     1260

gttgcattcg attcctgttt gtaattgtcc ttttaacagc gatcgcgtat ttcgtctcgc     1320

tcaggcgcaa tcacgaatga ataacggttt ggttgatgcg agtgattttg atgacgagcg     1380

taatggctgg cctgttgaac aagtctggaa agaaatgcat aaacttttgc cattctcacc     1440

ggattcagtc gtcactcatg gtgatttctc acttgataac cttatttttg acgaggggaa     1500

attaataggt tgtattgatg ttggacgagt cggaatcgca gaccgatacc aggatcttgc     1560

catcctatgg aactgcctcg gtgagttttc tccttcatta cagaaacggc tttttcaaaa     1620

atatggtatt gataatcctg atatgaataa attgcagttt catttgatgc tcgatgagtt     1680

tttctaatca gaattggtta attggttgta acattattca gattgggccc cgttccactg     1740

agcgtcagac cccgtagaaa agatcaaagg atcttcttga gatccttttt ttctgcgcgt     1800

aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg gtggtttgtt tgccggatca     1860

agagctacca actctttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac     1920

tgttcttcta gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac     1980

atacctcgct ctgctaatcc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct     2040

taccgggttg gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg     2100

gggttcgtgc acacagccca gcttggagcg aacgacctac accgaactga gatacctaca     2160

gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt     2220

aagcggcagg gtcggaacag gagagcgcac gagggagctt ccagggggaa acgcctggta     2280

tctttatagt cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc     2340

gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc     2400

cttttgctgg ccttttgctc acatgttctt tcctgcgtta tcccctgatt ctgtggataa     2460

ccgtattacc gctagcatgg atctcgggga cgtctaacta ctaagcgaga gtagggaact     2520

gccaggcatc aaataaaacg aaaggctcag tcggaagact gggcctttcg ttttatctgt     2580

tgtttgtcgg tgaacgctct cctgagtagg acaaatccgc cgggagcgga tttgaacgtt     2640

gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc cataaactgc caggcatcaa     2700

actaagcaga aggccatc                                                   2718
```

<210> 120

<211> 2723

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR3C

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (327)..(632)

<223> ccdB


<220>

<221> gene

<222> (661)..(760)

<223> attL2


<220>

<221> gene

<222> (883)..(1692)

<223> KmR


<220>

<221> gene

<222> (1797)..(2370)

<223> ori

<400> 120

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctcttt aaaggaacca     180

attcagtcga ctggatccgg taccgaattc gatcgcttac taaaagccag ataacagtat     240

gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta tacccgaagt     300

atgtcaaaaa gaggtgtgct tctagaatgc agtttaaggt ttacacctat aaaagagaga     360

gccgttatcg tctgtttgtg gatgtacaga gtgatattat tgacacgccc gggcgacgga     420

tggtgatccc cctggccagt gcacgtctgc tgtcagataa agtctcccgt gaactttacc     480

cggtggtgca tatcgggggat gaaagctggc gcatgatgac caccgatatg gccagtgtgc     540

cggtctccgt tatcgggggaa gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa     600

acgccattaa cctgatgttc tggggaatat agaattcgcg gccgcactcg agatatctag     660

acccagcttt cttgtacaaa gttggcatta taagaaagca ttgcttatca atttgttgca     720

acgaacaggt cactatcagt caaaataaaa tcattatttg ccatccagct gcagctctgg     780

cccgtgtctc aaaatctctg atgttacatt gcacaagata aaaatatatc atcatgaaca     840

ataaaactgt ctgcttacat aaacagtaat acaaggggtg ttatgagcca tattcaacgg     900

gaaacgtcga ggccgcgatt aaattccaac atggatgctg atttatatgg gtataaatgg     960

gctcgcgata atgtcgggca atcaggtgcg acaatctatc gcttgtatgg gaagcccgat    1020

gcgccagagt tgtttctgaa acatggcaaa ggtagcgttg ccaatgatgt tacagatgag    1080

atggtcagac taaactggct gacggaattt atgcctcttc cgaccatcaa gcattttatc    1140

cgtactcctg atgatgcatg gttactcacc actgcgatcc ccggaaaaac agcattccag    1200

gtattagaag aatatcctga ttcaggtgaa aatattgttg atgcgctggc agtgttcctg    1260

cgccggttgc attcgattcc tgtttgtaat tgtcctttta acagcgatcg cgtatttcgt    1320

ctcgctcagg cgcaatcacg aatgaataac ggtttggttg atgcgagtga ttttgatgac    1380

gagcgtaatg ctggcctgt tgaacaagtc tggaagaaa tgcataaact tttgccattc    1440

tcaccggatt cagtcgtcac tcatggtgat ttctcacttg ataaccttat ttttgacgag    1500

gggaaattaa taggttgtat tgatgttgga cgagtcggaa tcgcagaccg ataccaggat    1560

cttgccatcc tatggaactg cctcggtgag ttttctcctt cattacagaa acggcttttt    1620

caaaaatatg gtattgataa tcctgatatg aataaattgc agtttcattt gatgctcgat    1680

gagtttttct aatcagaatt ggttaattgg ttgtaacatt attcagattg ggccccgttc    1740

cactgagcgt cagacccccgt agaaaagatc aaaggatctt cttgagatcc ttttttttctg    1800
```

```
cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac cagcggtggt ttgtttgccg    1860

gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca    1920

aatactgttc ttctagtgta gccgtagtta ggccaccact tcaagaactc tgtagcaccg    1980

cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg    2040

tgtcttaccg ggttggactc aagacgatag ttaccggata aggcgcagcg gtcgggctga    2100

acggggggtt cgtgcacaca gcccagcttg gagcgaacga cctacaccga actgagatac    2160

ctacagcgtg agctatgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggtat    2220

ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc    2280

tggtatcttt atagtcctgt cgggtttcgc cacctctgac ttgagcgtcg attttttgtga   2340

tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt tttacggttc    2400

ctggcctttt gctggccttt tgctcacatg ttctttcctg cgttatcccc tgattctgtg    2460

gataaccgta ttaccgctag catggatctc ggggacgtct aactactaag cgagagtagg    2520

gaactgccag gcatcaaata aaacgaaagg ctcagtcgga agactgggcc tttcgtttta    2580

tctgttgttt gtcggtgaac gctctcctga gtaggacaaa tccgccggga gcggatttga    2640

acgttgtgaa gcaacggccc ggagggtggc gggcaggacg cccgccataa actgccaggc    2700

atcaaactaa gcagaaggcc atc                                           2723
```

<210> 121

<211> 2720

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR4

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (324)..(629)

<223> ccdB

<220>

<221> gene

<222> (658)..(757)

<223> attL2

<220>

<221> gene

<222> (880)..(1689)

<223> KmR

<220>

<221> gene

<222> (1794)..(2367)

<223> ori

<400> 121

```
ctgacggatg gcctttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctccac catgggaacc     180

aattcagtcg actggatccg gtaccgaatt cgcttactaa aagccagata acagtatgcg     240

tatttgcgcg ctgatttttg cggtataaga atatatactg atatgtatac cgaagtatg     300

tcaaaaagag gtgtgcttct agaatgcagt ttaaggttta cacctataaa agagagagcc     360

gttatcgtct gtttgtggat gtacagagtg atattattga cacgcccggg cgacggatgg     420

tgatccccct ggccagtgca cgtctgctgt cagataaagt ctcccgtgaa ctttacccgg     480

tggtgcatat cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg     540

tctccgttat cggggaagaa gtggctgatc tcagccaccg cgaaaatgac atcaaaaacg     600

ccattaacct gatgttctgg ggaatataga attcgcggcc gcactcgaga tatctagacc     660

cagctttctt gtacaaagtt ggcattataa gaaagcattg cttatcaatt tgttgcaacg     720

aacaggtcac tatcagtcaa aataaaatca ttatttgcca tccagctgca gctctggccc     780

gtgtctcaaa atctctgatg ttacattgca caagataaaa atatatcatc atgaacaata     840
```

```
aaactgtctg cttacataaa cagtaataca aggggtgtta tgagccatat tcaacgggaa    900

acgtcgaggc cgcgattaaa ttccaacatg gatgctgatt tatatgggta taaatgggct    960

cgcgataatg tcgggcaatc aggtgcgaca atctatcgct tgtatgggaa gcccgatgcg   1020

ccagagttgt ttctgaaaca tggcaaaggt agcgttgcca atgatgttac agatgagatg   1080

gtcagactaa actggctgac ggaatttatg cctcttccga ccatcaagca ttttatccgt   1140

actcctggtg atgcatggtt actcaccact gcgatccccg gaaaaacagc attccaggta   1200

ttagaagaat atcctgattc aggtgaaaat attgttgatg cgctggcagt gttcctgcgc   1260

cggttgcatt cgattcctgt ttgtaattgt ccttttaaca gcgatcgcgt atttcgtctc   1320

gctcaggcgc aatcacgaat gaataacggt ttggttgatg cgagtgattt tgatgacgag   1380

cgtaatggct ggcctgttga acaagtctgg aaagaaatgc ataaactttt gccattctca   1440

ccggattcag tcgtcactca tggtgatttc tcacttgata accttatttt tgacgagggg   1500

aaattaatag gttgtattga tgttggacga gtcggaatcg cagaccgata ccaggatctt   1560

gccatcctat ggaactgcct cggtgagttt tctccttcat tacagaaacg gctttttcaa   1620

aaatatggta ttgataatcc tgatatgaat aaaattgcagt ttcatttgat gctcgatgag   1680

tttttctaat cagaattggt taattggttg taacattatt cagattgggc cccgttccac   1740

tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccttt ttttctgcgc   1800

gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cggtggtttg tttgccggat   1860

caagagctac caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat   1920

actgttcttc tagtgtagcc gtagttaggc caccacttca agaactctgt agcaccgcct   1980

acatacctcg ctctgctaat cctgttacca gtggctgctg ccagtggcga taagtcgtgt   2040

cttaccgggt tggactcaag acgatagtta ccggataagg cgcagcggtc gggctgaacg   2100

gggggttcgt gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta   2160

cagcgtgagc tatgagaaag cgccacgctt cccgaaggga gaaaggcgga caggtatccg   2220

gtaagcggca gggtcggaac aggagagcgc acgagggagc ttccagggg aaacgcctgg   2280

tatctttata gtcctgtcgg gtttcgccac ctctgacttg agcgtcgatt tttgtgatgc   2340

tcgtcagggg ggcggagcct atggaaaaac gccagcaacg cggcctttt acggttcctg    2400

gccttttgct ggccttttgc tcacatgttc tttcctgcgt tatcccctga ttctgtggat   2460

aaccgtatta ccgctagcat ggatctcggg gacgtctaac tactaagcga gagtagggaa   2520

ctgccaggca tcaaataaaa cgaaaggctc agtcggaaga ctgggccttt cgttttatct   2580

gttgtttgtc ggtgaacgct ctcctgagta ggacaaatcc gccgggagcg gatttgaacg   2640

ttgtgaagca acggcccgga gggtggcggg caggacgccc gccataaact gccaggcatc   2700
```

aaactaagca gaaggccatc                                                              2720

<210> 122

<211> 2720

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR5

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (324)..(629)

<223> ccdB


<220>

<221> gene

<222> (658)..(757)

<223> attL2


<220>

<221> gene

<222> (880)..(1689)

<223> KmR


<220>

<221> gene

<222> (1794)..(2367)

&lt;223&gt;  ori


&lt;400&gt;  122
```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctttca tatgggaacc     180

aattcagtcg actggatccg gtaccgaatt cgcttactaa aagccagata acagtatgcg     240

tatttgcgcg ctgattttttg cggtataaga atatatactg atatgtatac ccgaagtatg     300

tcaaaaagag gtgtgcttct agaatgcagt ttaaggttta cacctataaa agagagagcc     360

gttatcgtct gtttgtggat gtacagagtg atattattga cacgcccggg cgacggatgg     420

tgatcccccct ggccagtgca cgtctgctgt cagataaagt ctcccgtgaa ctttacccgg     480

tggtgcatat cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg     540

tctccgttat cggggaagaa gtggctgatc tcagccaccg cgaaaatgac atcaaaaacg     600

ccattaacct gatgttctgg ggaatataga attcgcggcc gcactcgaga tatctagacc     660

cagctttctt gtacaaagtt ggcattataa gaaagcattg cttatcaatt gttgcaacg     720

aacaggtcac tatcagtcaa aataaaatca ttatttgcca tccagctgca gctctggccc     780

gtgtctcaaa atctctgatg ttacattgca caagataaaa atatatcatc atgaacaata     840

aaactgtctg cttacataaa cagtaataca aggggtgtta tgagccatat tcaacgggaa     900

acgtcgaggc cgcgattaaa ttccaacatg gatgctgatt tatatgggta taaatgggct     960

cgcgataatg tcgggcaatc aggtgcgaca atctatcgct tgtatgggaa gcccgatgcg    1020

ccagagttgt ttctgaaaca tggcaaaggt agcgttgcca atgatgttac agatgagatg    1080

gtcagactaa actggctgac ggaatttatg cctcttccga ccatcaagca tttttatccgt   1140

actcctgatg atgcatggtt actcaccact gcgatccccg gaaaaacagc attccaggta    1200

ttagaagaat atcctgattc aggtgaaaat attgttgatg cgctggcagt gttcctgcgc    1260

cggttgcatt cgattcctgt ttgtaattgt cctttttaaca gcgatcgcgt atttcgtctc    1320

gctcaggcgc aatcacgaat gaataacggt ttggttgatg cgagtgattt tgatgacgag    1380

cgtaatggct ggcctgttga acaagtctgg aaagaaatgc ataaactttt gccattctca    1440

ccggattcag tcgtcactca tggtgatttc tcacttgata accttatttt tgacgagggg    1500

aaattaatag gttgtattga tgttggacga tcggaatcg cagaccgata ccaggatctt    1560

gccatcctat ggaactgcct cggtgagttt tctccttcat tacagaaacg cttttttcaa    1620

aaatatggta ttgataatcc tgatatgaat aaattgcagt ttcatttgat gctcgatgag    1680

tttttctaat cagaattggt taattggttg taacattatt cagattgggc cccgttccac    1740
```

```
tgagcgtcag accccgtaga aaagatcaaa ggatcttctt gagatccttt ttttctgcgc    1800

gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag cggtggtttg tttgccggat    1860

caagagctac caactctttt tccgaaggta actggcttca gcagagcgca gataccaaat    1920

actgttcttc tagtgtagcc gtagttaggc caccacttca agaactctgt agcaccgcct    1980

acatacctcg ctctgctaat cctgttacca gtggctgctg ccagtggcga taagtcgtgt    2040

cttaccgggt tggactcaag acgatagtta ccggataagg cgcagcggtc gggctgaacg    2100

gggggttcgt gcacacagcc cagcttggag cgaacgacct acaccgaact gagataccta    2160

cagcgtgagc tatgagaaag cgccacgctt cccgaaggga gaaaggcgga caggtatccg    2220

gtaagcggca gggtcggaac aggagagcgc acgagggagc ttccaggggg aaacgcctgg    2280

tatctttata gtcctgtcgg gtttcgccac ctctgacttg agcgtcgatt tttgtgatgc    2340

tcgtcagggg ggcggagcct atggaaaaac gccagcaacg cggccttttt acggttcctg    2400

gccttttgct ggccttttgc tcacatgttc tttcctgcgt tatcccctga ttctgtggat    2460

aaccgtatta ccgctagcat ggatctcggg gacgtctaac tactaagcga gagtagggaa    2520

ctgccaggca tcgaataaaa cgaaaggctc agtcggaaga ctgggccttt cgttttatct    2580

gttgtttgtc ggtgaacgct ctcctgagta ggacaaatcc gccgggagcg gatttgaacg    2640

ttgtgaagca acggcccgga gggtggcggg caggacgccc gccataaact gccaggcatc    2700

aaactaagca gaaggccatc                                                2720
```

<210> 123

<211> 2717

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR6

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222>    (321)..(626)

<223>    ccdB


<220>

<221>    gene

<222>    (655)..(754)

<223>    attL2


<220>

<221>    gene

<222>    (877)..(1686)

<223>    KmR


<220>

<221>    gene

<222>    (1791)..(2364)

<223>    ori


<400>    123

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaacttttg tacaaaaaag caggctgcat gcgaaccaat     180

tcagtcgact ggatccggta ccgaattcgc ttactaaaag ccagataaca gtatgcgtat     240

ttgcgcgctg attttttgcgg tataagaata tatactgata tgtataccccg aagtatgtca     300

aaaagaggtg tgcttctaga atgcagttta aggtttacac ctataaaaga gagagccgtt     360

atcgtctgtt tgtggatgta cagagtgata ttattgacac gcccgggcga cggatggtga     420

tcccccctggc cagtgcacgt ctgctgtcag ataaagtctc ccgtgaactt tacccggtgg     480

tgcatatcgg ggatgaaagc tggcgcatga tgaccaccga tatggccagt gtgccggtct     540

ccgttatcgg ggaagaagtg gctgatctca gccaccgcga aaatgacatc aaaaacgcca     600

ttaacctgat gttctgggga atatagaatt cgcggccgca ctcgagatat ctagacccag     660

ctttcttgta caaagttggc attataagaa agcattgctt atcaatttgt tgcaacgaac     720

aggtcactat cagtcaaaat aaaatcatta tttgccatcc agctgcagct ctggcccgtg     780
```

```
tctcaaaatc tctgatgtta cattgcacaa gataaaaata tatcatcatg aacaataaaa    840

ctgtctgctt acataaacag taatacaagg ggtgttatga gccatattca acgggaaacg    900

tcgaggccgc gattaaattc caacatggat gctgatttat atgggtataa atgggctcgc    960

gataatgtcg ggcaatcagg tgcgacaatc tatcgcttgt atgggaagcc cgatgcgcca   1020

gagttgtttc tgaaacatgg caaaggtagc gttgccaatg atgttacaga tgagatggtc   1080

agactaaact ggctgacgga atttatgcct cttccgacca tcaagcattt tatccgtact   1140

cctgatgatg catggttact caccactgcg atccccggaa aaacagcatt ccaggtatta   1200

gaagaatatc ctgattcagg tgaaaatatt gttgatgcgc tggcagtgtt cctgcgccgg   1260

ttgcattcga ttcctgtttg taattgtcct tttaacagcg atcgcgtatt cgtctcgct   1320

caggcgcaat cacgaatgaa taacggtttg gttgatgcga gtgattttga tgacgagcgt   1380

aatggctggc ctgttgaaca agtctggaaa gaaatgcata aacttttgcc attctcaccg   1440

gattcagtcg tcactcatgg tgatttctca cttgataacc ttattttga cgaggggaaa   1500

ttaataggtt gtattgatgt tggacgagtc ggaatcgcag accgatacca ggatcttgcc   1560

atcctatgga actgcctcgg tgagttttct ccttcattac agaaacggct ttttcaaaaa   1620

tatggtattg ataatcctga tatgaataaa ttgcagtttc atttgatgct cgatgagttt   1680

ttctaatcag aattggttaa ttggttgtaa cattattcag attgggcccc gttccactga   1740

gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag atcctttttt tctgcgcgta   1800

atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg tggtttgttt gccggatcaa   1860

gagctaccaa ctctttttcc gaaggtaact ggcttcagca gagcgcagat accaaatact   1920

gttcttctag tgtagccgta gttaggccac cacttcaaga actctgtagc accgcctaca   1980

tacctcgctc tgctaatcct gttaccagtg ctgctgcca gtggcgataa gtcgtgtctt   2040

accgggttgg actcaagacg atagttaccg gataaggcgc agcggtcggg ctgaacgggg   2100

ggttcgtgca cacagcccag cttggagcga acgacctaca ccgaactgag atacctacag   2160

cgtgagctat gagaaagcgc cacgcttccc gaagggagaa aggcggacag gtatccggta   2220

agcggcaggg tcggaacagg agagcgcacg agggagcttc caggggaaa cgcctggtat   2280

ctttatagtc ctgtcgggtt tcgccacctc tgacttgagc gtcgattttt gtgatgctcg   2340

tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg cctttttacg gttcctggcc   2400

ttttgctggc cttttgctca catgttcttt cctgcgttat cccctgattc tgtggataac   2460

cgtattaccg ctagcatgga tctcggggac gtctaactac taagcgagag tagggaactg   2520

ccaggcatca aataaaacga aggctcagt cggaagactg ggcctttcgt tttatctgtt   2580

gtttgtcggt gaacgctctc ctgagtagga caaatccgcc gggagcggat ttgaacgttg   2640
```

tgaagcaacg gcccggaggg tggcgggcag gacgcccgcc ataaactgcc aggcatcaaa    2700

ctaagcagaa ggccatc                                                    2717


<210> 124

<211> 2738

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR7

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (342)..(647)

<223> ccdB


<220>

<221> gene

<222> (676)..(775)

<223> attL2


<220>

<221> gene

<222> (898)..(1707)

<223> KmR


<220>

<221> gene

&lt;222&gt;   (1812)..(2385)

&lt;223&gt;   ori


&lt;400&gt;   124

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctttga aaacctgtat     180

tttcaaggaa ccgtttcatg catcgtcgac tggatccggt accgaattcg cttactaaaa     240

gccagataac agtatgcgta tttgcgcgct gattttttgcg gtataagaat atatactgat     300

atgtataccc gaagtatgtc aaaaagaggt gtgcttctag aatgcagttt aaggtttaca     360

cctataaaag agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca     420

cgcccgggcg acggatagtg atccccctgg ccagtgcacg tctgctgtca gataaagtct     480

cccgtgaact ttacccggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg     540

atatggccag tgtgccggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg     600

aaaatgacat caaaaacgcc attaacctga tgttctgggg aatatagaat tcgcggccgc     660

actcgagata tctagaccca gctttcttgt acaaagttgg cattataaga aagcattgct     720

tatcaatttg ttgcaacgaa caggtcacta tcagtcaaaa taaaatcatt atttgccatc     780

cagctgcagc tctggcccgt gtctcaaaat ctctgatgtt acattgcaca agataaaaat     840

atatcatcat gaacaataaa actgtctgct tacataaaca gtaatacaag gggtgttatg     900

agccatattc aacgggaaac gtcgaggccg cgattaaatt ccaacatgga tgctgattta     960

tatgggtata aatgggctcg cgataatgtc gggcaatcag gtgcgacaat ctatcgcttg    1020

tatgggaagc ccgatgcgcc agagttgttt ctgaaacatg gcaaaggtag cgttgccaat    1080

gatgttacag atgagatggt cagactaaac tggctgacgg aatttatgcc tcttccgacc    1140

atcaagcatt ttatccgtac tcctgatgat gcatggttac tcaccactgc gatccccgga    1200

aaaacagcat tccaggtatt agaagaatat cctgattcag gtgaaaatat tgttgatgcg    1260

ctggcagtgt tcctgcgccg gttgcattcg attcctgttt gtaattgtcc ttttaacagc    1320

gatcgcgtat ttcgtctcgc tcaggcgcaa tcacgaatga ataacggttt ggttgatgcg    1380

agtgattttg atgacgagcg taatggctgg cctgttgaac aagtctggaa agaaatgcat    1440

aaacttttgc cattctcacc ggattcagtc gtcactcatg gtgatttctc acttgataac    1500

cttattttttg acgaggggaa attaataggt tgtattgatg ttggacgagt cggaatcgca    1560

gaccgatacc aggatcttgc catcctatgg aactgcctcg gtgagttttc tccttcatta    1620

cagaaacggc ttttttcaaaa atatggtatt gataatcctg atatgaataa attgcagttt    1680
```

```
catttgatgc tcgatgagtt tttctaatca gaattggtta attggttgta acattattca    1740

gattgggccc cgttccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga    1800

gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg    1860

gtggtttgtt tgccggatca agagctacca actctttttc cgaaggtaac tggcttcagc    1920

agagcgcaga taccaaatac tgttcttcta gtgtagccgt agttaggcca ccacttcaag    1980

aactctgtag caccgcctac atacctcgct ctgctaatcc tgttaccagt ggctgctgcc    2040

agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg    2100

cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac    2160

accgaactga gatacctaca gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga    2220

aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt    2280

ccaggggggaa acgcctggta tctttatagt cctgtcgggt ttcgccacct ctgacttgag    2340

cgtcgatttt tgtgatgctc gtcaggggggg cggagcctat ggaaaaacgc cagcaacgcg    2400

gcctttttac ggttcctggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta    2460

tcccctgatt ctgtggataa ccgtattacc gctagcatgg atctcgggga cgtctaacta    2520

ctaagcgaga gtagggaact gccaggcatc aaataaaacg aaaggctcag tcggaagact    2580

gggcctttcg ttttatctgt tgtttgtcgg tgaacgctct cctgagtagg acaaatccgc    2640

cgggagcgga tttgaacgtt gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc    2700

cataaactgc caggcatcaa actaagcaga aggccatc                            2738
```

<210> 125

<211> 2735

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR8

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (339)..(644)

<223> ccdB


<220>

<221> gene

<222> (673)..(772)

<223> attL2


<220>

<221> gene

<222> (895)..(1704)

<223> KmR


<220>

<221> gene

<222> (1809)..(2382)

<223> ori


<400> 125

```
ctgacggatg gcctttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc    60
gggccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat   120
aagcaatgct tttttataat gccaactttg tacaaaaaag caggctttga aaacctgtat   180
tttcaaggaa ccatggacct agtcgactgg atccggtacc gaattcgctt actaaaagcc   240
agataacagt atgcgtattt gcgcgctgat ttttgcggta taagaatata tactgatatg   300
tatacccgaa gtatgtcaaa aagaggtgtg cttctagaat gcagtttaag gtttacacct   360
ataaaagaga gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc   420
ccgggcgacg gatagtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc   480
gtgaacttta cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata   540
tggccagtgt gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa   600
atgacatcaa aaacgccatt aacctgatgt tctggggaat atagaattcg cggccgcact   660
cgagatatct agacccagct ttcttgtaca agttggcat  tataagaaag cattgcttat   720
```

```
caatttgttg caacgaacag gtcactatca gtcaaaataa aatcattatt tgccatccag    780

ctgcagctct ggcccgtgtc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata    840

tcatcatgaa caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc    900

catattcaac gggaaacgtc gaggccgcga ttaaattcca acatggatgc tgatttatat    960

gggtataaat gggctcgcga taatgtcggg caatcaggtg cgacaatcta tcgcttgtat   1020

gggaagcccg atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat   1080

gttacagatg agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc   1140

aagcatttta tccgtactcc tgatgatgca tggttactca ccactgcgat ccccggaaaa   1200

acagcattcc aggtattaga agaatatcct gattcaggtg aaaatattgt tgatgcgctg   1260

gcagtgtccc tgcgccggtt gcattcgatt cctgtttgta attgtccttt taacagcgat   1320

cgcgtatttc gtctcgctca ggcgcaatca cgaatgaata cggtttggt tgatgcgagt   1380

gattttgatg acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa   1440

cttttgccat tctcaccgga ttcagtcgtc actcatggtg atttctcact tgataacctt   1500

atttttgacg aggggaaatt aataggttgt attgatgttg acgagtcgg aatcgcagac   1560

cgataccagg atcttgccat cctatggaac tgcctcggtg agttttctcc ttcattacag   1620

aaacggcttt ttcaaaaata tggtattgat aatcctgata tgaataaatt gcagtttcat   1680

ttgatgctcg atgagttttt ctaatcagaa ttggttaatt ggttgtaaca ttattcagat   1740

tgggcccgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc ttcttgagat   1800

cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct accagcggtg   1860

gtttgtttgc cggatcaaga gctaccaact cttttccga aggtaactgg cttcagcaga   1920

gcgcagatac caaatactgt tcttctagtg tagccgtagt taggccacca cttcaagaac   1980

tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt   2040

ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga taaggcgcag   2100

cggtcgggct gaacggggg ttcgtgcaca cagcccagct tggagcgaac gacctacacc   2160

gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga agggagaaag   2220

gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag ggagcttcca   2280

gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg acttgagcgt   2340

cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag caacgcggcc   2400

tttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc tgcgttatcc   2460

cctgattctg tggataaccg tattaccgct agcatggatc tcggggacgt ctaactacta   2520

agcgagagta gggaactgcc aggcatcaaa taaaacgaaa ggctcagtcg gaagactggg   2580
```

```
cctttcgttt tatctgttgt ttgtcggtga acgctctcct gagtaggaca aatccgccgg   2640

gagcggattt gaacgttgtg aagcaacggc ccggagggtg gcgggcagga cgcccgccat   2700

aaactgccag gcatcaaact aagcagaagg ccatc                              2735
```

<210> 126

<211> 2735

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR9

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (339)..(644)

<223> ccdB


<220>

<221> gene

<222> (673)..(772)

<223> attL2


<220>

<221> gene

<222> (895)..(1704)

<223> KmR


<220>

<221>   gene

<222>   (1809)..(2382)

<223>   ori


<400>   126

```
ctgacggatg gccttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccaaa taatgattt attttgactg atagtgacct gttcgttgca acaaattgat      120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggctttga aaacctgtat      180

tttcaaggac atatgagatc tgtcgactgg atccggtacc gaattcgctt actaaaagcc      240

agataacagt atgcgtattt gcgcgctgat ttttgcggta taagaatata tactgatatg      300

tatacccgaa gtatgtcaaa aagaggtgtg cttctagaat gcagtttaag gtttacacct      360

ataaaagaga gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc      420

ccgggcgacg gatagtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc      480

gtgaacttta cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata      540

tggccagtgt gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa      600

atgacatcaa aaacgccatt aacctgatgt tctggggaat atagaattcg cggccgcact      660

cgagatatct agacccagct ttcttgtaca agttggcat tataagaaag cattgcttat      720

caatttgttg caacgaacag gtcactatca gtcaaaataa aatcattatt tgccatccag      780

ctgcagctct ggcccgtgtc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata      840

tcatcatgaa caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc      900

catattcaac gggaaacgtc gaggccgcga ttaaattcca acatggatgc tgatttatat      960

gggtataaat gggctcgcga taatgtcggg caatcaggtg cgacaatcta tcgcttgtat     1020

gggaagcccg atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat     1080

gttacagatg agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc     1140

aagcatttta tccgtactcc tgatgatgca tggttactca ccactgcgat ccccggaaaa     1200

acagcattcc aggtattaga agaatatcct gattcaggtg aaaatattgt tgatgcgctg     1260

gcagtgtccc tgcgccggtt gcattcgatt cctgtttgta attgtccttt taacagcgat     1320

cgcgtatttc gtctcgctca ggcgcaatca cgaatgaata cggtttggt tgatgcgagt     1380

gattttgatg acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa     1440

cttttgccat tctcaccgga ttcagtcgtc actcatggtg atttctcact tgataacctt     1500

attttgacg aggggaaatt aataggttgt attgatgttg acgagtcgg aatcgcagac     1560

cgataccagg atcttgccat cctatggaac tgcctcggtg agttttctcc ttcattacag     1620
```

```
aaacggcttt ttcaaaaata tggtattgat aatcctgata tgaataaatt gcagtttcat    1680

ttgatgctcg atgagttttt ctaatcagaa ttggttaatt ggttgtaaca ttattcagat    1740

tgggccccgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc ttcttgagat    1800

cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct accagcggtg    1860

gtttgtttgc cggatcaaga gctaccaact cttttttcga aggtaactgg cttcagcaga    1920

gcgcagatac caaatactgt tcttctagtg tagccgtagt taggccacca cttcaagaac    1980

tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc tgctgccagt    2040

ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga taaggcgcag    2100

cggtcgggct gaacggggggg ttcgtgcaca cagcccagct tggagcgaac gacctacacc    2160

gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga agggagaaag    2220

gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag ggagcttcca    2280

gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg acttgagcgt    2340

cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag caacgcggcc    2400

tttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc tgcgttatcc    2460

cctgattctg tggataaccg tattaccgct agcatggatc tcggggacgt ctaactacta    2520

agcgagagta gggaactgcc aggcatcaaa taaaacgaaa ggctcagtcg aagactggg     2580

cctttcgttt tatctgttgt ttgtcggtga acgctctcct gagtaggaca aatccgccgg    2640

gagcggattt gaacgttgtg aagcaacggc ccggagggtg gcgggcagga cgcccgccat    2700

aaactgccag gcatcaaact aagcagaagg ccatc                               2735
```

<210> 127

<211> 2738

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR10

<220>

<221> gene

<222> (67)..(166)

<223> attL1

<220>

<221>   gene

<222>   (342)..(647)

<223>   ccdB

<220>

<221>   gene

<222>   (676)..(775)

<223>   attL2

<220>

<221>   gene

<222>   (898)..(1707)

<223>   KmR

<220>

<221>   gene

<222>   (1812)..(2385)

<223>   ori

<400>  127
```
ctgacggatg gcctttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc    60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat   120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggcttcga actaaggaaa   180

tacttacata tgggaaccaa ttcagtcgac tggatccggt accgaattcg cttactaaaa   240

gccagataac agtatgcgta tttgcgcgct gattttttgcg gtataagaat atatactgat   300

atgtataccc gaagtatgtc aaaaagaggt gtgcttctag aatgcagttt aaggtttaca   360

cctataaaag agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca   420

cgcccgggcg acggatggtg atccccctgg ccagtgcacg tctgctgtca gataaagtct   480

cccgtgaact ttacccggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg   540

atatggccag tgtgccggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg   600

aaaatgacat caaaaacgcc attaacctga tgttctgggg aatatagaat tcgcggccgc   660
```

```
actcgagata tctagaccca gctttcttgt acaaagttgg cattataaga aagcattgct    720

tatcaatttg ttgcaacgaa caggtcacta tcagtcaaaa taaaatcatt atttgccatc    780

cagctgcagc tctggcccgt gtctcaaaat ctctgatgtt acattgcaca agataaaaat    840

atatcatcat gaacaataaa actgtctgct tacataaaca gtaatacaag gggtgttatg    900

agccatattc aacgggaaac gtcgaggccg cgattaaatt ccaacatgga tgctgattta    960

tatgggtata aatgggctcg cgataatgtc gggcaatcag gtgcgacaat ctatcgcttg   1020

tatgggaagc ccgatgcgcc agagttgttt ctgaaacatg gcaaaggtag cgttgccaat   1080

gatgttacag atgagatggt cagactaaac tggctgacgg aatttatgcc tcttccgacc   1140

atcaagcatt ttatccgtac tcctgatgat gcatggttac tcaccactgc gatccccgga   1200

aaaacagcat tccaggtatt agaagaatat cctgattcag gtgaaaatat tgttgatgcg   1260

ctggcagtgt tcctgcgccg gttgcattcg attcctgttt gtaattgtcc ttttaacagc   1320

gatcgcgtat ttcgtctcgc tcaggcgcaa tcacgaatga ataacggttt ggttgatgcg   1380

agtgattttg atgacgagcg taatggctgg cctgttgaac aagtctggaa agaaatgcat   1440

aaacttttgc cattctcacc ggattcagtc gtcactcatg gtgatttctc acttgataac   1500

cttatttttg acgaggggaa attaataggt tgtattgatg ttggacgagt cggaatcgca   1560

gaccgatacc aggatcttgc catcctatgg aactgcctcg gtgagttttc tccttcatta   1620

cagaaacggc tttttcaaaa atatggtatt gataatcctg atatgaataa attgcagttt   1680

catttgatgc tcgatgagtt tttctaatca gaattggtta attggttgta acattattca   1740

gattgggccc cgttccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga   1800

gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg   1860

gtggtttgtt tgccggatca agagctacca actctttttc cgaaggtaac tggcttcagc   1920

agagcgcaga taccaaatac tgttcttcta gtgtagccgt agttaggcca ccacttcaag   1980

aactctgtag caccgcctac atacctcgct ctgctaatcc tgttaccagt ggctgctgcc   2040

agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg   2100

cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac   2160

accgaactga gatacctaca gcgtgagcta tgagaaagcg ccacgcttcc gaagggaga   2220

aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt   2280

ccagggggaa acgcctggta tctttatagt cctgtcgggt ttcgccacct ctgacttgag   2340

cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg   2400

gcctttttac ggttcctggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta   2460

tcccctgatt ctgtggataa ccgtattacc gctagcatgg atctcgggga cgtctaacta   2520
```

```
ctaagcgaga gtagggaact gccaggcatc gaataaaacg aaaggctcag tcggaagact   2580

gggcctttcg ttttatctgt tgtttgtcgg tgaacgctct cctgagtagg acaaatccgc   2640

cgggagcgga tttgaacgtt gtgaagcaac ggcccggagg gtggcgggca ggacgcccgc   2700

cataaactgc caggcatcaa actaagcaga aggccatc                           2738
```

<210> 128

<211> 2744

<212> DNA

<213> Artificial Sequence


<220>

<223> Entry Vector pENTR11

<220>

<221> gene

<222> (67)..(166)

<223> attL1


<220>

<221> gene

<222> (348)..(653)

<223> ccdB


<220>

<221> gene

<222> (683)..(781)

<223> attL2


<220>

<221> gene

<222> (904)..(1713)

<223> KmR

<220>

<221> gene

<222> (1818)..(2391)

<223> ori


<400> 128

```
ctgacggatg gccttttttgc gtttctacaa actcttcctg ttagttagtt acttaagctc      60

gggcccccaaa taatgatttt attttgactg atagtgacct gttcgttgca acaaattgat     120

aagcaatgct tttttataat gccaactttg tacaaaaaag caggcttcga aggagataga     180

accaattctc taaggaaata cttaaccatg gtcgactgga tccggtaccg aattcgctta     240

ctaaaagcca gataacagta tgcgtatttg cgcgctgatt tttgcggtat aagaatatat     300

actgatatgt atacccgaag tatgtcaaaa agaggtgtgc ttctagaatg cagtttaagg     360

tttacaccta taaaagagag agccgttatc gtctgtttgt ggatgtacag agtgatatta     420

ttgacacgcc cgggcgacgg atagtgatcc ccctggccag tgcacgtctg ctgtcagata     480

aagtctcccg tgaactttac ccggtggtgc atatcgggga tgaaagctgg cgcatgatga     540

ccaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct gatctcagcc     600

accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata tagaattcgc     660

ggccgcactc gagatatcta gacccagctt tcttgtacaa agttggcatt ataagaaagc     720

attgcttatc aatttgttgc aacgaacagg tcactatcag tcaaaataaa atcattattt     780

gccatccagc tgcagctctg gcccgtgtct caaaatctct gatgttacat tgcacaagat     840

aaaaatatat catcatgaac aataaaactg tctgcttaca taaacagtaa tacaaggggt     900

gttatgagcc atattcaacg ggaaacgtcg aggccgcgat taaattccaa catggatgct     960

gatttatatg ggtataaatg ggctcgcgat aatgtcgggc aatcaggtgc gacaatctat    1020

cgcttgtatg ggaagcccga tgcgccagag ttgtttctga acatggcaa aggtagcgtt    1080

gccaatgatg ttacagatga gatggtcaga ctaaactggc tgacggaatt tatgcctctt    1140

ccgaccatca agcatttttat ccgtactcct gatgatgcat ggttactcac cactgcgatc    1200

cccggaaaaa cagcattcca ggtattagaa gaatatcctg attcaggtga aaatattgtt    1260

gatgcgctgg cagtgttcct gcgccggttg cattcgattc ctgtttgtaa ttgtcctttt    1320

aacagcgatc gcgtatttcg tctcgctcag gcgcaatcac gaatgaataa cggtttggtt    1380

gatgcgagtg attttgatga cgagcgtaat ggctggcctg ttgaacaagt ctggaaagaa    1440

atgcataaac ttttgccatt ctcaccggat tcagtcgtca ctcatggtga tttctcactt    1500

gataacctta ttttttgacga ggggaaatta ataggttgta ttgatgttgg acgagtcgga    1560
```

```
atcgcagacc gataccagga tcttgccatc ctatggaact gcctcggtga gttttctcct   1620

tcattacaga aacggctttt tcaaaaatat ggtattgata atcctgatat gaataaattg   1680

cagtttcatt tgatgctcga tgagtttttc taatcagaat tggttaattg gttgtaacat   1740

tattcagatt gggccccgtt ccactgagcg tcagaccccg tagaaaagat caaaggatct   1800

tcttgagatc ctttttttct gcgcgtaatc tgctgcttgc aaacaaaaaa accaccgcta   1860

ccagcggtgg tttgtttgcc ggatcaagag ctaccaactc tttttccgaa ggtaactggc   1920

ttcagcagag cgcagatacc aaatactgtt cttctagtgt agccgtagtt aggccaccac   1980

ttcaagaact ctgtagcacc gcctacatac ctcgctctgc taatcctgtt accagtggct   2040

gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata gttaccggat   2100

aaggcgcagc ggtcgggctg aacggggggt tcgtgcacac agcccagctt ggagcgaacg   2160

acctacaccg aactgagata cctacagcgt gagctatgag aaagcgccac gcttcccgaa   2220

gggagaaagg cggacaggta tccggtaagc ggcagggtcg aacaggaga gcgcacgagg   2280

gagcttccag ggggaaacgc ctggtatctt tatagtcctg tcgggtttcg ccacctctga   2340

cttgagcgtc gatttttgtg atgctcgtca ggggggcgga gcctatggaa aaacgccagc   2400

aacgcggcct ttttacggtt cctggccttt tgctggcctt ttgctcacat gttctttcct   2460

gcgttatccc ctgattctgt ggataaccgt attaccgcta gcatggatct cggggacgtc   2520

taactactaa gcgagagtag ggaactgcca ggcatcaaat aaaacgaaag gctcagtcgg   2580

aagactgggc ctttcgtttt atctgttgtt tgtcggtgaa cgctctcctg agtaggacaa   2640

atccgccggg agcggatttg aacgttgtga agcaacggcc cggagggtgg cgggcaggac   2700

gcccgccata aactgccagg catcaaacta agcagaaggc catc                     2744
```

<210> 129

<211> 6464

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST1

<220>

<221> gene

<222> (216)..(257)

<223> Trc promoter

```
<220>

<221>   gene

<222>   (273)..(393)

<223>   attR1


<220>

<221>   gene

<222>   (647)..(1306)

<223>   CmR


<220>

<221>   gene

<222>   (1426)..(1510)

<223>   inactivated ccdA


<220>

<221>   gene

<222>   (1648)..(1953)

<223>   ccdB


<220>

<221>   gene

<222>   (1994)..(2118)

<223>   attR2


<220>

<221>   gene

<222>   (2598)..(3503)

<223>   ampR
```

<220>

<221> gene

<222> (4104)..(4264)

<223> ori


<220>

<221> gene

<222> (4504)..(4941)

<223> f1ori (f1 intergenic region)


<220>

<221> gene

<222> (5340)..(6420)

<223> lacIq


<400> 129
```
gtttgacagc ttatcatcga ctgcacggtg caccaatgct tctggcgtca ggcagccatc      60

ggaagctgtg gtatggctgt gcaggtcgta aatcactgca taattcgtgt cgctcaaggc     120

gcactcccgt tctggataat gttttttgcg ccgacatcat aacggttctg gcaaatattc     180

tgaaatgagc tgttgacaat taatcatccg gtccgtataa tctgtggaat tgtgagcggg     240

ataacaattt catcgcgagg taccaagcta tcacaagttt gtacaaaaaa gctgaacgag     300

aaacgtaaaa tgatataaat atcaatatat taaattagat tttgcataaa aaacagacta     360

cataatactg taaaacacaa catatccagt cactatggcg gccgctaagt tggcagcatc     420

acccgacgca ctttgcgccg aataaatacc tgtgacggaa gatcacttcg cagaataaat     480

aaatcctggt gtccctgttg ataccgggaa gccctgggcc aacttttggc gaaaatgaga     540

cgttgatcgg cacgtaagag gttccaactt tcaccataat gaaataagat cactaccggg     600

cgtattttt gagttatcga gattttcagg agctaaggaa gctaaaatgg agaaaaaaat     660

cactggatat accaccgttg atatatccca atggcatcgt aaagaacatt ttgaggcatt     720

tcagtcagtt gctcaatgta cctataacca gaccgttcag ctggatatta cggcctttt     780

aaagaccgta aagaaaaata agcacaagtt ttatccggcc tttattcaca ttcttgcccg     840

cctgatgaat gctcatccgg aattccgtat ggcaatgaaa gacggtgagc tggtgatatg     900

ggatagtgtt cacccttgtt acaccgtttt ccatgagcaa actgaaacgt tttcatcgct     960
```

```
ctggagtgaa taccacgacg atttccggca gtttctacac atatattcgc aagatgtggc   1020

gtgttacggt gaaaacctgg cctatttccc taaagggttt attgagaata tgttttttcgt   1080

ctcagccaat ccctgggtga gtttcaccag ttttgattta aacgtggcca atatggacaa   1140

cttcttcgcc cccgttttca ccatgggcaa atattatacg caaggcgaca aggtgctgat   1200

gccgctggcg attcaggttc atcatgccgt ctgtgatggc ttccatgtcg gcagaatgct   1260

taatgaatta caacagtact gcgatgagtg gcagggcggg gcgtaaacgc gtggatccgg   1320

cttactaaaa gccagataac agtatgcgta tttgcgcgct gattttttgcg gtataagaat   1380

atatactgat atgtataccc gaagtatgtc aaaaagaggt gtgctatgaa gcagcgtatt   1440

acagtgacag ttgacagcga cagctatcag ttgctcaagg catatatgat gtcaatatct   1500

ccggtctggt aagcacaacc atgcagaatg aagcccgtcg tctgcgtgcc gaacgctgga   1560

aagcggaaaa tcaggaaggg atggctgagg tcgcccggtt tattgaaatg aacggctctt   1620

ttgctgacga gaacagggac tggtgaaatg cagtttaagg tttcaccta taaaagagag   1680

agccgttatc gtctgtttgt ggatgtacag agtgatatta ttgacacgcc cgggcgacgg   1740

atggtgatcc ccctggccag tgcacgtctg ctgtcagata aagtctcccg tgaactttac   1800

ccggtggtgc atatcggggga tgaaagctgg cgcatgatga ccaccgatat ggccagtgtg   1860

ccggtctccg ttatcgggga agaagtggct gatctcagcc accgcgaaaa tgacatcaaa   1920

aacgccatta acctgatgtt ctggggaata taaatgtcag gctcccttat acacagccag   1980

tctgcaggtc gaccatagtg actggatatg ttgtgtttta cagtattatg tagtctgttt   2040

tttatgcaaa atctaattta atatattgat atttatatca ttttacgttt ctcgttcagc   2100

tttcttgtac aaagtggtga tagcttggct gttttggcgg atgagagaag attttcagcc   2160

tgatacagat aaatcagaa cgcagaagcg gtctgataaa acagaatttg cctggcggca   2220

gtagcgcggt ggtcccacct gaccccatgc cgaactcaga agtgaaacgc cgtagcgccg   2280

atggtagtgt ggggtctccc catgcgagag tagggaactg ccaggcatca aataaaacga   2340

aaggctcagt cgaaagactg gcctttcgt tttatctgtt gtttgtcggt gaacgctctc   2400

ctgagtagga caaatccgcc gggagcggat ttgaacgttg cgaagcaacg gcccggaggg   2460

tggcgggcag gacgcccgcc ataaactgcc aggcatcaaa ttaagcagaa ggccatcctg   2520

acggatggcc ttttttgcgtt tctacaaact cttttttgttt attttttctaa atacattcaa   2580

atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat tgaaaaagga   2640

agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg gcattttgcc   2700

ttcctgtttt tgctcaccca gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg   2760

gtgcacgagt gggttacatc gaactggatc tcaacagcgg taagatcctt gagagttttc   2820
```

```
gccccgaaga acgttttcca atgatgagca cttttaaagt tctgctatgt ggcgcggtat    2880

tatcccgtgt tgacgccggg caagagcaac tcggtcgccg catacactat tctcagaatg    2940

acttggttga gtactcacca gtcacagaaa agcatcttac ggatggcatg acagtaagag    3000

aattatgcag tgctgccata accatgagtg ataacactgc ggccaactta cttctgacaa    3060

cgatcggagg accgaaggag ctaaccgctt ttttgcacaa catgggggat catgtaactc    3120

gccttgatcg ttgggaaccg gagctgaatg aagccatacc aaacgacgag cgtgacacca    3180

cgatgcctac agcaatggca acaacgttgc gcaaactatt aactggcgaa ctacttactc    3240

tagcttcccg gcaacaatta atagactgga tggaggcgga taaagttgca ggaccacttc    3300

tgcgctcggc ccttccggct ggctggttta ttgctgataa atctggagcc ggtgagcgtg    3360

ggtctcgcgg tatcattgca gcactggggc cagatggtaa gccctcccgt atcgtagtta    3420

tctacacgac ggggagtcag gcaactatgg atgaacgaaa tagacagatc gctgagatag    3480

gtgcctcact gattaagcat tggtaactgt cagaccaagt ttactcatat atactttaga    3540

ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt tttgataatc    3600

tcatgaccaa aatcccttaa cgtgagtttt cgttccactg agcgtcagac cccgtagaaa    3660

agatcaaagg atcttcttga tccttttt ttctgcgcgt aatctgctgc ttgcaaacaa    3720

aaaaaccacc gctaccagcg gtggtttgtt tgccggatca agagctacca actcttttc    3780

cgaaggtaac tggcttcagc agagcgcaga taccaaatac tgtccttcta gtgtagccgt    3840

agttaggcca ccacttcaag aactctgtag caccgcctac atacctcgct ctgctaatcc    3900

tgttaccagt ggctgctgcc agtggcgata agtcgtgtct taccgggttg gactcaagac    3960

gatagttacc ggataaggcg cagcggtcgg gctgaacggg gggttcgtgc acacagccca    4020

gcttggagcg aacgacctac accgaactga gatacctaca gcgtgagcta tgagaaagcg    4080

ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg tcggaacag    4140

gagagcgcac gagggagctt ccaggggggaa acgcctggta tctttatagt cctgtcgggt    4200

ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcagggggg cggagcctat    4260

ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc cttttgctgg ccttttgctc    4320

acatgttctt tcctgcgtta tcccctgatt ctgtggataa ccgtattacc gcctttgagt    4380

gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagtg agcgaggaag    4440

cggaagagcg cctgatgcgg tattttctcc ttacgcatct gtgcggtatt tcacaccgca    4500

taattttgtt aaaattcgcg ttaaattttt gttaaatcag ctcattttt aaccaatagg    4560

ccgaaatcgg caaaatccct tataaatcaa aagaatagac cgagataggg ttgagtgttg    4620

ttccagtttg gaacaagagt ccactattaa agaacgtgga ctccaacgtc aaagggcgaa    4680
```

aaaccgtcta tcagggcgat ggcccactac gtgaaccatc accctaatca agttttttgg    4740

ggtcgaggtg ccgtaaagca ctaaatcgga accctaaagg gagcccccga tttagagctt    4800

gacggggaaa gccggcgaac gtggcgagaa aggaagggaa gaaagcgaaa ggagcgggcg    4860

ctagggcgct ggcaagtgta gcggtcacgc tgcgcgtaac caccacaccc gccgcgctta    4920

atgcgccgct acagggcgcg tccattcgcc attcaggctg ctatggtgca ctctcagtac    4980

aatctgctct gatgccgcat agttaagcca gtaccagtca cgtagcgata tcggagtgta    5040

tacactccgc tatcgctacg tgactgggtc atggctgcgc cccgacaccc gccaacaccc    5100

gctgacgcgc cctgacgggc ttgtctgctc ccggcatccg cttacagaca agctgtgacc    5160

gtctccggga gctgcatgtg tcagaggttt tcaccgtcat caccgaaacg cgcgaggcag    5220

cagatcaatt cgcgcgcgaa ggcgaagcgg catgcattta cgttgacacc atcgaatggt    5280

gcaaaacctt tcgcggtatg gcatgatagc gcccggaaga gagtcaattc agggtggtga    5340

atgtgaaacc agtaacgtta tacgatgtcg cagagtatgc cggtgtctct tatcagaccg    5400

tttcccgcgt ggtgaaccag gccagccacg tttctgcgaa aacgcgggaa aaagtggaag    5460

cggcgatggc ggagctgaat tacattccca accgcgtggc acaacaactg gcgggcaaac    5520

agtcgttgct gattggcgtt gccacctcca gtctggccct gcacgcgccg tcgcaaattg    5580

tcgcggcgat taaatctcgc gccgatcaac tgggtgccag cgtggtggtg tcgatggtag    5640

aacgaagcgg cgtcgaagcc tgtaaagcgg cggtgcacaa tcttctcgcg caacgcgtca    5700

gtgggctgat cattaactat ccgctggatg accaggatgc cattgctgtg gaagctgcct    5760

gcactaatgt tccggcgtta tttcttgatg tctctgacca gacacccatc aacagtatta    5820

ttttctccca tgaagacggt acgcgactgg gcgtggagca tctggtcgca ttgggtcacc    5880

agcaaatcgc gctgttagcg ggcccattaa gttctgtctc ggcgcgtctg cgtctggctg    5940

gctggcataa atatctcact cgcaatcaaa ttcagccgat agcggaacgg gaaggcgact    6000

ggagtgccat gtccggtttt caacaaacca tgcaaatgct gaatgagggc atcgttccca    6060

ctgcgatgct ggttgccaac gatcagatgg cgctgggcgc aatgcgcgcc attaccgagt    6120

ccgggctgcg cgttggtgcg gatatctcgg tagtgggata cgacgatacc gaagacagct    6180

catgttatat cccgccgtta accaccatca aacaggattt tcgcctgctg gggcaaacca    6240

gcgtggaccg cttgctgcaa ctctctcagg ccaggcggt gaaggggcaat cagctgttgc    6300

ccgtctcact ggtgaaaaga aaaaccaccc tggcacccaa tacgcaaacc gcctctcccc    6360

gcgcgttggc cgattcatta atgcagctgg cacgacaggt ttcccgactg aaagcgggc    6420

agtgagcgca acgcaattaa tgtgagttag cgcgaattga tctg    6464

<210> 130

<211> 6553

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST2

<220>

<221> gene

<222> (912)..(962)

<223> Trc


<220>

<221> gene

<222> (1009)..(1223)

<223> attR1


<220>

<221> gene

<222> (1473)..(2132)

<223> CmR


<220>

<221> gene

<222> (2252)..(2336)

<223> inactivated ccdA


<220>

<221> gene

<222> (2474)..(2779)

<223> ccdB

<220>

<221> gene

<222> (2820)..(2944)

<223> attR2


<220>

<221> gene

<222> (3509)..(4414)

<223> ampR


<220>

<221> gene

<222> (5015)..(5175)

<223> ori


<220>

<221> gene

<222> (5415)..(5825)

<223> f1ori (f1 intergenic region)


<220>

<221> gene

<222> (752)..(6225)

<223> lacIq


<400> 130

```
ggcggtgcac aatcttctcg cgcaacgcgt cagtgggctg atcattaact atccgctgga      60

tgaccaggat gccattgctg tggaagctgc ctgcactaat gttccggcgt tatttcttga     120

tgtctctgac cagacaccca tcaacagtat tattttctcc catgaagacg gtacgcgact     180

gggcgtggag catctggtcg cattgggtca ccagcaaatc gcgctgttag cgggcccatt     240

aagttctgtc tcggcgcgtc tgcgtctggc tggctggcat aaatatctca ctcgcaatca     300

aattcagccg atagcggaac gggaaggcga ctggagtgcc atgtccggtt ttcaacaaac     360
```

```
catgcaaatg ctgaatgagg gcatcgttcc cactgcgatg ctggttgcca acgatcagat    420

ggcgctgggc gcaatgcgcg ccattaccga gtccgggctg cgcgttggtg cggatatctc    480

ggtagtggga tacgacgata ccgaagacag ctcatgttat atcccgccgt caaccaccat    540

caaacaggat tttcgcctgc tggggcaaac cagcgtggac cgcttgctgc aactctctca    600

gggccaggcg gtgaagggca atcagctgtt gcccgtctca ctggtgaaaa gaaaaaccac    660

cctggcaccc aatacgcaaa ccgcctctcc ccgcgcgttg gccgattcat taatgcagct    720

ggcacgacag gtttcccgac tggaaagcgg gcagtgagcg caacgcaatt aatgtgagtt    780

agcgcgaatt gatctggttt gacagcttat catcgactgc acggtgcacc aatgcttctg    840

gcgtcaggca gccatcggaa gctgtggtat ggctgtgcag gtcgtaaatc actgcataat    900

tcgtgtcgct caaggcgcac tcccgttctg gataatgttt tttgcgccga catcataacg    960

gttctggcaa atattctgaa atgagctgtt gacaattaat catccggtcc gtataatctg   1020

tggaattgtg agcggataac aatttcacac aggaaacaga ccatgtcgta ctaccatcac   1080

catcaccatc acggcatcac aagtttgtac aaaaaagctg aacgagaaac gtaaaatgat   1140

ataaatatca atatattaaa ttagattttg cataaaaaac agactacata atactgtaaa   1200

acacaacata tccagtcact atggcggccg ctaagttggc agcatcaccc gacgcacttt   1260

gcgccgaata aatacctgtg acggaagatc acttcgcaga ataaataaat cctggtgtcc   1320

ctgttgatac cgggaagccc tgggccaact tttggcgaaa atgagacgtt gatcggcacg   1380

taagaggttc caactttcac cataatgaaa taagatcact accgggcgta ttttttgagt   1440

tatcgagatt ttcaggagct aaggaagcta aaatggagaa aaaaatcact ggatatacca   1500

ccgttgatat atcccaatgg catcgtaaag aacattttga ggcatttcag tcagttgctc   1560

aatgtaccta taaccagacc gttcagctgg atattacggc cttttttaaag accgtaaaga   1620

aaaataagca caagttttat ccggccttta ttcacattct tgcccgcctg atgaatgctc   1680

atccggaatt ccgtatggca atgaaagacg gtgagctggt gatatgggat agtgttcacc   1740

cttgttacac cgttttccat gagcaaactg aaacgttttc atcgctctgg agtgaatacc   1800

acgacgattt ccggcagttt ctacacatat attcgcaaga tgtggcgtgt tacggtgaaa   1860

acctggccta tttccctaaa gggtttattg agaatatgtt tttcgtctca gccaatccct   1920

gggtgagttt caccagtttt gatttaaacg tggccaatat ggacaacttc ttcgcccccg   1980

ttttcaccat gggcaaatat tatacgcaag gcgacaaggt gctgatgccg ctggcgattc   2040

aggttcatca tgccgtctgt gatggcttcc atgtcggcag aatgcttaat gaattacaac   2100

agtactgcga tgagtggcag ggcggggcgt aaacgcgtgg atccggctta ctaaaagcca   2160

gataacagta tgcgtatttg cgcgctgatt tttgcggtat aagaatatat actgatatgt   2220
```

```
atacccgaag tatgtcaaaa agaggtgtgc tatgaagcag cgtattacag tgacagttga   2280

cagcgacagc tatcagttgc tcaaggcata tatgatgtca atatctccgg tctggtaagc   2340

acaaccatgc agaatgaagc ccgtcgtctg cgtgccgaac gctggaaagc ggaaaatcag   2400

gaagggatgg ctgaggtcgc ccggtttatt gaaatgaacg gctcttttgc tgacgagaac   2460

agggactggt gaaatgcagt ttaaggttta cacctataaa agagagagcc gttatcgtct   2520

gtttgtggat gtacagagtg atattattga cacgcccggg cgacggatgg tgatccccct   2580

ggccagtgca cgtctgctgt cagataaagt ctcccgtgaa ctttacccgg tggtgcatat   2640

cggggatgaa agctggcgca tgatgaccac cgatatggcc agtgtgccgg tctccgttat   2700

cggggaagaa gtggctgatc tcagccaccg cgaaaatgac atcaaaaacg ccattaacct   2760

gatgttctgg ggaatataaa tgtcaggctc ccttatacac agccagtctg caggtcgacc   2820

atagtgactg gatatgttgt gttttacagt attatgtagt ctgttttttta tgcaaaatct   2880

aatttaatat attgatattt atatcatttt acgtttctcg ttcagctttc ttgtacaaag   2940

tggtgatgcc catatgggaa ttcaaaggcc tacgtcgacg agctcactag tcgcggccgc   3000

ttctagagga tccctcgagg catgcggtac caagcttggc tgttttggcg gatgagagaa   3060

gattttcagc ctgatacaga ttaaatcaga acgcagaagc ggtctgataa aacagaattt   3120

gcctggcggc agtagcgcgg tggtcccacc tgaccccatg ccgaactcag aagtgaaacg   3180

ccgtagcgcc gatggtagtg tggggtctcc ccatgcgaga gtagggaact gccaggcatc   3240

aaataaaacg aaaggctcag tcgaaagact gggcctttcg ttttatctgt tgtttgtcgg   3300

tgaacgctct cctgagtagg acaaatccgc cgggagcgga tttgaacgtt gcgaagcaac   3360

ggcccggagg gtggcgggca ggacgcccgc cataaactgc caggcatcaa attaagcaga   3420

aggccatcct gacggatggc cttttttgcgt ttctacaaac tcttttttgtt tattttttcta   3480

aatacattca aatatgtatc cgctcatgag acaataaccc tgataaatgc ttcaataata   3540

ttgaaaaagg aagagtatga gtattcaaca tttccgtgtc gcccttattc cctttttttgc   3600

ggcattttgc cttcctgttt ttgctcaccc agaaacgctg gtgaaagtaa aagatgctga   3660

agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct   3720

tgagagtttt cgccccgaag aacgttttcc aatgatgagc acttttaaag ttctgctatg   3780

tggcgcggta ttatcccgtg ttgacgccgg gcaagagcaa ctcggtcgcc gcatacacta   3840

ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat   3900

gacagtaaga gaattatgca gtgctgccat aaccatgagt gataacactg cggccaactt   3960

acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca acatgggggga   4020

tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga   4080
```

```
gcgtgacacc acgatgccta cagcaatggc aacaacgttg cgcaaactat taactggcga   4140

actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagttgc   4200

aggaccactt ctgcgctcgg cccttccggc tggctggttt attgctgata aatctggagc   4260

cggtgagcgt gggtctcgcg gtatcattgc agcactgggg ccagatggta agccctcccg   4320

tatcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat   4380

cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag tttactcata   4440

tatactttag attgatttaa aacttcattt ttaatttaaa aggatctagg tgaagatcct   4500

ttttgataat ctcatgacca aaatccctta acgtgagttt tcgttccact gagcgtcaga   4560

ccccgtagaa aagatcaaag gatcttcttg agatcctttt tttctgcgcg taatctgctg   4620

cttgcaaaca aaaaaaccac cgctaccagc ggtggtttgt ttgccggatc aagagctacc   4680

aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct   4740

agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgccta catacctcgc   4800

tctgctaatc ctgttaccag tggctgctgc cagtggcgat aagtcgtgtc ttaccgggtt   4860

ggactcaaga cgatagttac cggataaggc gcagcggtcg ggctgaacgg ggggttcgtg   4920

cacacagccc agcttggagc gaacgaccta caccgaactg agatacctac agcgtgagct   4980

atgagaaagc gccacgcttc ccgaagggag aaaggcggac aggtatccgg taagcggcag   5040

ggtcggaaca ggagagcgca cgaggagct tccaggggga aacgcctggt atctttatag   5100

tcctgtcggg tttcgccacc tctgacttga gcgtcgattt ttgtgatgct cgtcaggggg   5160

gcggagccta tggaaaaacg ccagcaacgc ggcctttta cggttcctgg ccttttgctg   5220

gccttttgct cacatgttct ttcctgcgtt atcccctgat tctgtggata accgtattac   5280

cgcctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt   5340

gagcgaggaa gcggaagagc gcctgatgcg gtattttctc cttacgcatc tgtgcggtat   5400

ttcacaccgc ataattttgt taaaattcgc gttaaatttt tgttaaatca gctcattttt   5460

taaccaatag gccgaaatcg gcaaaatccc ttataaatca aaagaataga ccgagatagg   5520

gttgagtgtt gttccagttt ggaacaagag tccactatta aagaacgtgg actccaacgt   5580

caaagggcga aaaaccgtct atcagggcga tggcccacta cgtgaaccat caccctaatc   5640

aagttttttg gggtcgaggt gccgtaaagc actaaatcgg aaccctaaag ggagcccccg   5700

atttagagct tgacggggaa agccggcgaa cgtggcgaga aaggaaggga agaaagcgaa   5760

aggagcgggc gctagggcgc tggcaagtgt agcggtcacg ctgcgcgtaa ccaccacacc   5820

cgccgcgctt aatgcgccgc tacagggcgc gtcccattcg ccattcaggc tgctatggtg   5880

cactctcagt acaatctgct ctgatgccgc atagttaagc cagtatacac tccgctatcg   5940
```

```
ctacgtgact gggtcatggc tgcgccccga cacccgccaa cacccgctga cgcgccctga    6000

cgggcttgtc tgctcccggc atccgcttac agacaagctg tgaccgtctc cgggagctgc    6060

atgtgtcaga ggttttcacc gtcatcaccg aaacgcgcga ggcagcagat caattcgcgc    6120

gcgaaggcga agcggcatgc atttacgttg acaccatcga atggtgcaaa acctttcgcg    6180

gtatggcatg atagcgcccg gaagagagtc aattcagggt ggtgaatgtg aaaccagtaa    6240

cgttatacga tgtcgcagag tatgccggtg tctcttatca gaccgtttcc cgcgtggtga    6300

accaggccag ccacgtttct gcgaaaacgc gggaaaaagt ggaagcggcg atggcggagc    6360

tgaattacat tcccaaccgc gtggcacaac aactggcggg caaacagtcg ttgctgattg    6420

gcgttgccac ctccagtctg gccctgcacg cgccgtcgca aattgtcgcg gcgattaaat    6480

ctcgcgccga tcaactgggt gccagcgtgg tggtgtcgat ggtagaacga agcggcgtcg    6540

aagcctgtaa agc                                                       6553
```

<210> 131

<211> 6823

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST3

<220>

<221> gene

<222> (150)..(200)

<223> Trc


<220>

<221> gene

<222> (963)..(1087)

<223> attR1


<220>

<221> gene

<222> (1337)..(1996)

<223> CmR


<220>

<221> gene

<222> (2116)..(2200)

<223> inactivated ccdA


<220>

<221> gene

<222> (2338)..(2643)

<223> ccdB


<220>

<221> gene

<222> (2684)..(2808)

<223> attR2


<220>

<221> gene

<222> (3231)..(4091)

<223> ampR


<220>

<221> gene

<222> (5295)..(6254)

<223> lacIq


<400> 131
acgttatcga ctgcacggtg caccaatgct tctggcgtca ggcagccatc ggaagctgtg      60

gtatggctgt gcaggtcgta aatcactgca taattcgtgt cgctcaaggc gcactcccgt     120

tctggataat gttttttgcg ccgacatcat aacggttctg gcaaatattc tgaaatgagc     180

tgttgacaat taatcatcgg ctcgtataat gtgtggaatt gtgagcggat aacaatttca     240

```
cacaggaaac agtattcatg tcccctatac taggttattg gaaaattaag ggccttgtgc    300

aacccactcg acttcttttg gaatatcttg aagaaaaata tgaagagcat ttgtatgagc    360

gcgatgaagg tgataaatgg cgaaacaaaa agtttgaatt gggtttggag tttcccaatc    420

ttccttatta tattgatggt gatgttaaat taacacagtc tatggccatc atacgttata    480

tagctgacaa gcacaacatg ttgggtggtt gtccaaaaga gcgtgcagag atttcaatgc    540

ttgaaggagc ggttttggat attagatacg gtgtttcgag aattgcatat agtaaagact    600

ttgaaactct caaagttgat tttcttagca agctacctga aatgctgaaa atgttcgaag    660

atcgtttatg tcataaaaca tatttaaatg gtgatcatgt aacccatcct gacttcatgt    720

tgtatgacgc tcttgatgtt gttttataca tggacccaat gtgcctggat gcgttcccaa    780

aattagtttg ttttaaaaaa cgtattgaag ctatcccaca aattgataag tacttgaaat    840

ccagcaagta tatagcatgg cctttgcagg gctggcaagc cacgtttggt ggtggcgacc    900

atcctccaaa atcggatctg gttccgcgtg gatctcgtcg tgcatctgtt ggatccccat    960

caacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat atcaatatat   1020

taaattagat tttgcataaa aaacagacta cataatactg taaaacacaa catatccagt   1080

cactatggcg gccgctaagt tggcagcatc acccgacgca ctttgcgccg aataaatacc   1140

tgtgacggaa gatcacttcg cagaataaat aaatcctggt gtccctgttg ataccgggaa   1200

gccctgggcc aacttttggc gaaaatgaga cgttgatcgg cacgtaagag gttccaactt   1260

tcaccataat gaaataagat cactaccggg cgtatttttt gagttatcga ttttcagg     1320

agctaaggaa gctaaaatgg agaaaaaaat cactggatat accaccgttg atatatccca   1380

atggcatcgt aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta cctataacca   1440

gaccgttcag ctggatatta cggccttttt aaagaccgta agaaaaata agcacaagtt   1500

ttatccggcc tttattcaca ttcttgcccg cctgatgaat gctcatccgg aattccgtat   1560

ggcaatgaaa gacggtgagc tggtgatatg ggatagtgtt caccttgtt acaccgtttt   1620

ccatgagcaa actgaaacgt tttcatcgct ctggagtgaa taccacgacg atttccggca   1680

gtttctacac atatattcgc aagatgtggc gtgttacggt gaaaacctgg cctatttccc   1740

taaagggttt attgagaata tgttttttcgt ctcagccaat ccctgggtga gtttcaccag   1800

ttttgattta aacgtggcca atatggacaa cttcttcgcc cccgttttca ccatgggcaa   1860

atattatacg caaggcgaca aggtgctgat gccgctggcg attcaggttc atcatgccgt   1920

ctgtgatggc ttccatgtcg gcagaatgct taatgaatta caacagtact gcgatgagtg   1980

gcagggcggg gcgtaaagat ctggatccgg cttactaaaa gccagataac agtatgcgta   2040

tttgcgcgct gattttttgcg gtataagaat atatactgat atgtataccc gaagtatgtc   2100
```

```
aaaaagaggt gtgctatgaa gcagcgtatt acagtgacag ttgacagcga cagctatcag    2160

ttgctcaagg catatatgat gtcaatatct ccggtctggt aagcacaacc atgcagaatg    2220

aagcccgtcg tctgcgtgcc gaacgctgga aagcggaaaa tcaggaaggg atggctgagg    2280

tcgcccggtt tattgaaatg aacggctctt ttgctgacga gaacagggac tggtgaaatg    2340

cagtttaagg tttacaccta taaaagagag agccgttatc gtctgtttgt ggatgtacag    2400

agtgatatta ttgacacgcc cgggcgacgg atggtgatcc ccctggccag tgcacgtctg    2460

ctgtcagata aagtctcccg tgaactttac ccggtggtgc atatcgggga tgaaagctgg    2520

cgcatgatga ccaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct    2580

gatctcagcc accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata    2640

taaatgtcag gctcccttat acacagccag tctgcaggtc gaccatagtg actggatatg    2700

ttgtgtttta cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat    2760

atttatatca ttttacgttt ctcgttcagc tttcttgtac aaagtggttg atgggaattc    2820

atcgtgactg actgacgatc tgcctcgcgc gtttcggtga tgacggtgaa aacctctgac    2880

acatgcagct cccggagacg gtcacagctt gtctgtaagc ggatgccggg agcagacaag    2940

cccgtcaggg cgcgtcagcg ggtgttggcg ggtgtcgggg cgcagccatg acccagtcac    3000

gtagcgatag cggagtgtat aattcttgaa gacgaaaggg cctcgtgata cgcctatttt    3060

tataggttaa tgtcatgata ataatggttt cttagacgtc aggtggcact tttcggggaa    3120

atgtgcgcgg aacccctatt tgtttatttt tctaaataca ttcaaatatg tatccgctca    3180

tgagacaata accctgataa atgcttcaat aatattgaaa aaggaagagt atgagtattc    3240

aacatttccg tgtcgccctt attccctttt ttgcggcatt ttgccttcct gtttttgctc    3300

acccagaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt    3360

acatcgaact ggatctcaac agcggtaaga tccttgagag ttttcgcccc gaagaacgtt    3420

ttccaatgat gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtgttgacg    3480

ccgggcaaga gcaactcggt cgccgcatac actattctca gaatgacttg gttgagtact    3540

caccagtcac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgctg    3600

ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga    3660

aggagctaac cgcttttttg cacaacatgg gggatcatgt aactcgcctt gatcgttggg    3720

aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg cctgcagcaa    3780

tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct tcccggcaac    3840

aattaataga ctggatggag gcggataaag ttgcaggacc acttctgcgc tcggcccttc    3900

cggctggctg gtttattgct gataaatctg gagccggtga gcgtgggtct cgcggtatca    3960
```

```
ttgcagcact ggggccagat ggtaagccct cccgtatcgt agttatctac acgacgggga    4020

gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta    4080

agcattggta actgtcagac caagtttact catatatact ttagattgat ttaaaacttc    4140

atttttaatt taaaaggatc taggtgaaga tcctttttga taatctcatg accaaaatcc    4200

cttaacgtga gttttcgttc cactgagcgt cagaccccgt agaaaagatc aaaggatctt    4260

cttgagatcc ttttttttctg cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac    4320

cagcggtggt ttgtttgccg gatcaagagc taccaactct ttttccgaag gtaactggct    4380

tcagcagagc gcagatacca aatactgtcc ttctagtgta gccgtagtta ggccaccact    4440

tcaagaactc tgtagcaccg cctacatacc tcgctctgct aatcctgtta ccagtggctg    4500

ctgccagtgg cgataagtcg tgtcttaccg ggttggactc aagacgatag ttaccggata    4560

aggcgcagcg gtcgggctga acggggggtt cgtgcacaca gcccagcttg gagcgaacga    4620

cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg cttcccgaag    4680

ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg    4740

agcttccagg gggaaacgcc tggtatcttt atagtcctgt cgggtttcgc cacctctgac    4800

ttgagcgtcg attttgtga tgctcgtcag ggggcggag cctatggaaa aacgccagca    4860

acgcggcctt tttacggttc ctggcctttt gctggccttt tgctcacatg ttctttcctg    4920

cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagtgagct gataccgctc    4980

gccgcagccg aacgaccgag cgcagcgagt cagtgagcga ggaagcggaa gagcgcctga    5040

tgcggtattt tctccttacg catctgtgcg gtatttcaca ccgcataaat tccgacacca    5100

tcgaatggtg caaaaccttt cgcggtatgg catgatagcg cccggaagag agtcaattca    5160

gggtggtgaa tgtgaaacca gtaacgttat acgatgtcgc agagtatgcc ggtgtctctt    5220

atcagaccgt ttcccgcgtg gtgaaccagg ccagccacgt ttctgcgaaa acgcgggaaa    5280

aagtggaagc ggcgatggcg gagctgaatt acattcccaa ccgcgtggca caacaactgg    5340

cgggcaaaca gtcgttgctg attggcgttg ccacctccag tctggccctg cacgcgccgt    5400

cgcaaattgt cgcggcgatt aaatctcgcg ccgatcaact gggtgccagc gtggtggtgt    5460

cgatggtaga acgaagcggc gtcgaagcct gtaaagcggc ggtgcacaat cttctcgcgc    5520

aacgcgtcag tgggctgatc attaactatc cgctggatga ccaggatgcc attgctgtgg    5580

aagctgcctg cactaatgtt ccggcgttat ttcttgatgt ctctgaccag acacccatca    5640

acagtattat tttctcccat gaagacggta cgcgactggg cgtggagcat ctggtcgcat    5700

tgggtcacca gcaaatcgcg ctgttagcgg gcccattaag ttctgtctcg gcgcgtctgc    5760

gtctggctgg ctggcataaa tatctcactc gcaatcaaat tcagccgata gcggaacggg    5820
```

```
aaggcgactg gagtgccatg tccggttttc aacaaaccat gcaaatgctg aatgagggca    5880

tcgttcccac tgcgatgctg gttgccaacg atcagatggc gctgggcgca atgcgcgcca    5940

ttaccgagtc cgggctgcgc gttggtgcgg atatctcggt agtgggatac gacgataccg    6000

aagacagctc atgttatatc ccgccgttaa ccaccatcaa acaggatttt cgcctgctgg    6060

ggcaaaccag cgtggaccgc ttgctgcaac tctctcaggg ccaggcggtg aagggcaatc    6120

agctgttgcc cgtctcactg gtgaaaagaa aaaccaccct ggcgcccaat acgcaaaccg    6180

cctctccccg cgcgttggcc gattcattaa tgcagctggc acgacaggtt tcccgactgg    6240

aaagcgggca gtgagcgcaa cgcaattaat gtgagttagc tcactcatta ggcaccccag    6300

gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa ttgtgagcgg ataacaattt    6360

cacacaggaa acagctatga ccatgattac ggattcactg gccgtcgttt tacaacgtcg    6420

tgactgggaa aaccctggcg ttacccaact taatcgcctt gcagcacatc cccctttcgc    6480

cagctggcgt aatagcgaag aggcccgcac cgatcgccct tcccaacagt tgcgcagcct    6540

gaatggcgaa tggcgctttg cctggtttcc ggcaccagaa gcggtgccgg aaagctggct    6600

ggagtgcgat cttcctgagg ccgatactgt cgtcgtcccc tcaaactggc agatgcacgg    6660

ttacgatgcg cccatctaca ccaacgtaac ctatcccatt acggtcaatc cgccgtttgt    6720

tcccacggag aatccgacgg gttgttactc gctcacattt aatgttgatg aaagctggct    6780

acaggaaggc cagacgcgaa ttatttttga tggcgttgga att                      6823
```

<210> 132

<211> 6964

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST4

<220>

<221> misc_feature

<222> (6950)..(6950)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<220>

<221> gene

<222> (964)..(1003)

<223> Trc


<220>

<221> gene

<222> (1453)..(1577)

<223> attR1


<220>

<221> gene

<222> (1827)..(2486)

<223> CmR


<220>

<221> gene

<222> (2606)..(2690)

<223> inactivated ccdA


<220>

<221> gene

<222> (2828)..(3133)

<223> ccdB


<220>

<221> gene

<222> (3174)..(3298)

<223> attR2


<220>

<221> gene

<222> (3872)..(4777)

<223> ampR

<220>

<221> gene

<222> (5378)..(5538)

<223> ori

<220>

<221> gene

<222> (5778)..(6215)

<223> flori (f1 intergenic region)

<220>

<221> gene

<222> (704)..(6587)

<223> lacIq

<400> 132

```
ctatccgctg gatgaccagg atgccattgc tgtggaagct gcctgcacta atgttccggc        60

gttatttctt gatgtctctg accagacacc catcaacagt attattttct cccatgaaga       120

cggtacgcga ctgggcgtgg agcatctggt cgcattgggt caccagcaaa tcgcgctgtt       180

agcgggccca ttaagttctg tctcggcgcg tctgcgtctg gctggctggc ataaatatct       240

cactcgcaat caaattcagc cgatagcgga acgggaaggc gactggagtg ccatgtccgg       300

ttttcaacaa accatgcaaa tgctgaatga gggcatcgtt cccactgcga tgctggttgc       360

caacgatcag atggcgctgg gcgcaatgcg cgccattacc gagtccgggc tgcgcgttgg       420

tgcggatatc tcggtagtgg gatacgacga taccgaagac agctcatgtt atatcccgcc       480

gtcaaccacc atcaaacagg attttcgcct gctggggcaa accagcgtgg accgcttgct       540

gcaactctct cagggccagg cggtgaaggg caatcagctg ttgcccgtct cactggtgaa       600

aagaaaaacc accctggcac ccaatacgca aaccgcctct ccccgcgcgt tggccgattc       660

attaatgcag ctggcacgac aggtttcccg actggaaagc gggcagtgag cgcaacgcaa       720

ttaatgtgag ttagcgcgaa ttgatctggt ttgacagctt atcatcgact gcacggtgca       780

ccaatgcttc tggcgtcagg cagccatcgg aagctgtggt atggctgtgc aggtcgtaaa       840
```

```
tcactgcata attcgtgtcg ctcaaggcgc actcccgttc tggataatgt tttttgcgcc      900

gacatcataa cggttctggc aaatattctg aaatgagctg ttgacaatta atcatccggt      960

ccgtataatc tgtggaattg tgagcggata acaatttcac acaggaaaca gaccatgggt     1020

catcatcatc atcatcacga ttacgatatc ccaacgaccg aaaacctgta ttttcagggc     1080

gcccatatga gcgataaaat tattcacctg actgacgaca gttttgacac ggatgtactc     1140

aaagcggacg gggcgatcct cgtcgatttc tgggcagagt ggtgcggtcc gtgcaaaatg     1200

atcgccccga ttctggatga aatcgctgac gaatatcagg gcaaactgac cgttgcaaaa     1260

ctgaacatcg atcaaaaccc tggcactgcg ccgaaatatg gcatccgtgg tatcccgact     1320

ctgctgctgt tcaaaaacgg tgaagtggcg gcaaccaaag tgggtgcact gtctaaaggt     1380

cagttgaaag agttcctcga cgctaacctg gccggttctg ttctggtga  tgacgatgac     1440

aaggtacccatcacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat     1500

atcaatatat taaattagat tttgcataaa aaacagacta cataatactg taaaacacaa     1560

catatccagt cactatggcg gccgctaagt tggcagcatc acccgacgca ctttgcgccg     1620

aataaatacc tgtgacggaa gatcacttcg cagaataaat aaatcctggt gtccctgttg     1680

ataccgggaa gccctgggcc aacttttggc gaaaatgaga cgttgatcgg cacgtaagag     1740

gttccaactt tcaccataat gaaataagat cactaccggg cgtatttttt gagttatcga     1800

gattttcagg agctaaggaa gctaaaatgg agaaaaaaat cactggatat accaccgttg     1860

atatatccca atggcatcgt aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta     1920

cctataacca gaccgttcag ctggatatta cggccttttt aaagaccgta agaaaaata      1980

agcacaagtt ttatccggcc tttattcaca ttcttgcccg cctgatgaat gctcatccgg     2040

aattccgtat ggcaatgaaa gacggtgagc tggtgatatg ggatagtgtt caccctgtt      2100

acaccgtttt ccatgagcaa actgaaacgt tttcatcgct ctggagtgaa taccacgacg     2160

atttccggca gtttctacac atatattcgc aagatgtggc gtgttacggt gaaaacctgg     2220

cctatttccc taaagggttt attgagaata tgtttttcgt ctcagccaat ccctgggtga     2280

gtttcaccag ttttgattta aacgtggcca atatggacaa cttcttcgcc cccgttttca     2340

ccatgggcaa atattatacg caaggcgaca aggtgctgat gccgctggcg attcaggttc     2400

atcatgccgt ctgtgatggc ttccatgtcg gcagaatgct taatgaatta caacagtact     2460

gcgatgagtg gcagggcggg gcgtaaacgc gtggatccgg cttactaaaa gccagataac     2520

agtatgcgta tttgcgcgct gattttgcg gtataagaat atatactgat atgtataccc     2580

gaagtatgtc aaaagaggt gtgctatgaa gcagcgtatt acagtgacag ttgacagcga     2640

cagctatcag ttgctcaagg catatatgat gtcaatatct ccggtctggt aagcacaacc     2700
```

```
atgcagaatg aagcccgtcg tctgcgtgcc gaacgctgga aagcggaaaa tcaggaaggg    2760

atggctgagg tcgcccggtt tattgaaatg aacggctctt ttgctgacga gaacagggac    2820

tggtgaaatg cagtttaagg tttacaccta taaaagagag agccgttatc gtctgtttgt    2880

ggatgtacag agtgatatta ttgacacgcc cgggcgacgg atggtgatcc ccctggccag    2940

tgcacgtctg ctgtcagata aagtctcccg tgaactttac ccggtggtgc atatcggggga   3000

tgaaagctgg cgcatgatga ccaccgatat ggccagtgtg ccggtctccg ttatcggggga   3060

agaagtggct gatctcagcc accgcgaaaa tgacatcaaa aacgccatta acctgatgtt    3120

ctggggaata taaatgtcag gctcccttat acacagccag tctgcaggtc gaccatagtg    3180

actggatatg ttgtgtttta cagtattatg tagtctgttt tttatgcaaa atctaattta    3240

atatattgat atttatatca ttttacgttt ctcgttcagc tttcttgtac aaagtggtga    3300

tggggatcct ctagagtcga cctgcagtaa tcgtacaggg tagtacaaat aaaaaaggca    3360

cgtcagatga cgtgcctttt ttcttgtgag cagtaagctt ggctgttttg gcggatgaga    3420

gaagattttc agcctgatac agattaaatc agaacgcaga agcggtctga taaaacagaa    3480

tttgcctggc ggcagtagcg cggtggtccc acctgacccc atgccgaact cagaagtgaa    3540

acgccgtagc gccgatggta gtgtggggtc tccccatgcg agagtaggga actgccaggc    3600

atcaaataaa acgaaaggct cagtcgaaag actgggcctt tcgttttatc tgttgtttgt    3660

cggtgaacgc tctcctgagt aggacaaatc cgccgggagc ggatttgaac gttgcgaagc    3720

aacggcccgg agggtggcgg gcaggacgcc cgccataaac tgccaggcat caaattaagc    3780

agaaggccat cctgacggat ggcctttttg cgtttctaca aactcttttt gtttattttt    3840

ctaaatacat tcaaatatgt atccgctcat gagacaataa ccctgataaa tgcttcaata    3900

atattgaaaa aggaagagta tgagtattca acatttccgt gtcgccctta ttcccttttt    3960

tgcggcattt tgccttcctg tttttgctca cccagaaacg ctggtgaaag taaaagatgc    4020

tgaagatcag ttgggtgcac gagtgggtta catcgaactg gatctcaaca gcggtaagat    4080

ccttgagagt tttcgccccg aagaacgttt tccaatgatg agcacttta aagttctgct    4140

atgtggcgcg gtattatccc gtgttgacgc cgggcaagag caactcggtc gccgcataca    4200

ctattctcag aatgacttgg ttgagtactc accagtcaca gaaaagcatc ttacggatgg    4260

catgacagta agagaattat gcagtgctgc cataaccatg agtgataaca ctgcggccaa    4320

cttacttctg acaacgatcg gaggaccgaa ggagctaacc gctttttgc acaacatggg    4380

ggatcatgta actcgccttg atcgttggga accggagctg aatgaagcca taccaaacga    4440

cgagcgtgac accacgatgc ctacagcaat ggcaacaacg ttgcgcaaac tattaactgg    4500

cgaactactt actctagctt cccggcaaca attaatagac tggatggagg cggataaagt    4560
```

```
tgcaggacca cttctgcgct cggcccttcc ggctggctgg tttattgctg ataaatctgg    4620

agccggtgag cgtgggtctc gcggtatcat tgcagcactg gggccagatg gtaagccctc    4680

ccgtatcgta gttatctaca cgacggggag tcaggcaact atggatgaac gaaatagaca    4740

gatcgctgag ataggtgcct cactgattaa gcattggtaa ctgtcagacc aagtttactc    4800

atatatactt tagattgatt taaaacttca tttttaattt aaaaggatct aggtgaagat    4860

cctttttgat aatctcatga ccaaaatccc ttaacgtgag ttttcgttcc actgagcgtc    4920

agaccccgta gaaaagatca aaggatcttc ttgagatcct tttttctgc gcgtaatctg    4980

ctgcttgcaa acaaaaaac caccgctacc agcggtggtt tgtttgccgg atcaagagct    5040

accaactctt tttccgaagg taactggctt cagcagagcg cagataccaa atactgtcct    5100

tctagtgtag ccgtagttag gccaccactt caagaactct gtagcaccgc ctacatacct    5160

cgctctgcta atcctgttac cagtggctgc tgccagtggc gataagtcgt gtcttaccgg    5220

gttggactca agacgatagt taccggataa ggcgcagcgg tcgggctgaa cggggggttc    5280

gtgcacacag cccagcttgg agcgaacgac ctacaccgaa ctgagatacc tacagcgtga    5340

gctatgagaa agcgccacgc ttcccgaagg gagaaaggcg gacaggtatc cggtaagcgg    5400

cagggtcgga acaggagagc gcacgaggga gcttccaggg ggaaacgcct ggtatcttta    5460

tagtcctgtc gggtttcgcc acctctgact tgagcgtcga tttttgtgat gctcgtcagg    5520

ggggcggagc ctatggaaaa acgccagcaa cgcggccttt ttacggttcc tggccttttg    5580

ctggcctttt gctcacatgt tctttcctgc gttatcccct gattctgtgg ataaccgtat    5640

taccgccttt gagtgagctg ataccgctcg ccgcagccga acgaccgagc gcagcgagtc    5700

agtgagcgag gaagcggaag agcgcctgat gcggtatttt ctccttacgc atctgtgcgg    5760

tatttcacac cgcataattt tgttaaaatt cgcgttaaat ttttgttaaa tcagctcatt    5820

ttttaaccaa taggccgaaa tcggcaaaat cccttataaa tcaaaagaat agaccgagat    5880

agggttgagt gttgttccag tttggaacaa gagtccacta ttaaagaacg tggactccaa    5940

cgtcaaaggg cgaaaaaccg tctatcaggg cgatggccca ctacgtgaac catcacccta    6000

atcaagtttt ttggggtcga ggtgccgtaa agcactaaat cggaacccta aagggagccc    6060

ccgatttaga gcttgacggg gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc    6120

gaaaggagcg ggcgctaggg cgctggcaag tgtagcggtc acgctgcgcg taaccaccac    6180

acccgccgcg cttaatgcgc cgctacaggg cgcgtccatt cgccattcag ctgctatgg    6240

tgcactctca gtacaatctg ctctgatgcc gcatagttaa gccagtatac actccgctat    6300

cgctacgtga ctgggtcatg gctgcgcccc gacacccgcc aacacccgct gacgcgccct    6360

gacgggcttg tctgctcccg gcatccgctt acagacaagc tgtgaccgtc tccgggagct    6420
```

```
gcatgtgtca gaggttttca ccgtcatcac cgaaacgcgc gaggcagcag atcaattcgc   6480

gcgcgaaggc gaagcggcat gcatttacgt tgacaccatc gaatggtgca aaacctttcg   6540

cggtatggca tgatagcgcc cggaagagag tcaattcagg gtggtgaatg tgaaaccagt   6600

aacgttatac gatgtcgcag agtatgccgg tgtctcttat cagaccgttt cccgcgtggt   6660

gaaccaggcc agccacgttt ctgcgaaaac gcgggaaaaa gtggaagcgg cgatggcgga   6720

gctgaattac attcccaacc gcgtggcaca acaactggcg ggcaaacagt cgttgctgat   6780

tggcgttgcc acctccagtc tggccctgca cgcgccgtcg caaattgtcg cggcgattaa   6840

atctcgcgcc gatcaactgg gtgccagcgt ggtggtgtcg atggtagaac gaagcggcgt   6900

cgaagcctgt aaagcggcgg tgcacaatct tctcgcgcaa cgcgtcagtn gggctgatca   6960

ttaa                                                                6964
```

<210> 133

<211> 5957

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST5

<220>

<221> gene

<222> (181)..(305)

<223> attR1


<220>

<221> gene

<222> (555)..(1214)

<223> CmR


<220>

<221> gene

<222> (1334)..(1418)

<223> inactivated ccdA

<220>

<221>  gene

<222>  (1556)..(1861)

<223>  ccdB


<220>

<221>  gene

<222>  (1902)..(2026)

<223>  attR2


<220>

<221>  gene

<222>  (2278)..(2733)

<223>  f1 (f1 intergenic region)


<220>

<221>  gene

<222>  (2865)..(3722)

<223>  ampR


<220>

<221>  gene

<222>  (5378)..(5538)

<223>  ori


<220>

<221>  gene

<222>  (4756)..(5922)

<223>  lacI

<400> 133

```
aggcacccca ggctttacac tttatgcttc cggctcgtat gttgtgtgga attgtgagcg     60

gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc taatacgact    120

cactataggg aaagctggta cgcctgcagg taccggtccg gaattcccgg gtcgacgatc    180

acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta    240

aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca    300

ctatggcggc cgctaagttg gcagcatcac ccgacgcact ttgcgccgaa taaatacctg    360

tgacggaaga tcacttcgca gaataaataa atcctggtgt ccctgttgat accgggaagc    420

cctgggccaa cttttggcga aaatgagacg ttgatcggca cgtaagaggt tccaactttc    480

accataatga aataagatca ctaccgggcg tattttttga gttatcgaga ttttcaggag    540

ctaaggaagc taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat    600

ggcatcgtaa agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga    660

ccgttcagct ggatattacg gcctttttaa agaccgtaaa gaaaaataag cacaagtttt    720

atccggcctt tattcacatt cttgcccgcc tgatgaatgc tcatccggaa ttccgtatgg    780

caatgaaaga cggtgagctg gtgatatggg atagtgttca cccttgttac accgttttcc    840

atgagcaaac tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt    900

ttctacacat atattcgcaa gatgtggcgt gttacggtga aaacctggcc tatttcccta    960

aagggtttat tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt   1020

ttgatttaaa cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaat   1080

attatacgca aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct   1140

gtgatggctt ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc   1200

agggcggggc gtaaacgcgt ggatccggct tactaaaagc cagataacag tatgcgtatt   1260

tgcgcgctga tttttgcggt ataagaatat atactgatat gtatacccga agtatgtcaa   1320

aaagaggtgt gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt   1380

gctcaaggca tatatgatgt caatatctcc ggtctggtaa gcacaaccat gcagaatgaa   1440

gcccgtcgtc tgcgtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc   1500

gcccggttta ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca   1560

gtttaaggtt tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag   1620

tgatattatt gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct   1680

gtcagataaa gtctcccgtg aactttaccc ggtggtgcat atcggggatg aaagctggcg   1740

catgatgacc accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga   1800

tctcagccac cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata   1860
```

```
aatgtcaggc tcccttatac acagccagtc tgcaggtcga ccatagtgac tggatatgtt   1920

gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat atattgatat   1980

ttatatcatt ttacgtttct cgttcagctt tcttgtacaa agtggtgatc actagtcggc   2040

ggccgctcta gaggatccaa gcttacgtac gcgtgcatgc gacgtcatag ctcttctata   2100

gtgtcaccta aattcaattc actggccgtc gttttacaac gtcgtgactg ggaaaaccct   2160

ggcgttaccc aacttaatcg ccttgcagca catccccctt tcgccagctg cgtaatagc   2220

gaagaggccc gcaccgatcg cccttcccaa cagttgcgca gcctgaatgg cgaatggacg   2280

cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta   2340

cacttgccag cgccctagcg cccgctcctt tcgctttctt cccttccttt ctcgccacgt   2400

tcgccggctt tccccgtcaa gctctaaatc gggggctccc tttagggttc cgatttagtg   2460

ctttacggca cctcgacccc aaaaaacttg attagggtga tggttcacgt agtgggccat   2520

cgccctgata gacggttttt cgccctttga cgttggagtc cacgttcttt aatagtggac   2580

tcttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag   2640

ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttaacg   2700

cgaattttaa caaaatatta acgtttacaa tttcaggtgg cacttttcgg ggaaatgtgc   2760

gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgagac   2820

aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt attcaacatt   2880

tccgtgtcgc ccttattccc ttttttgcgg catttttgcct tcctgttttt gctcacccag   2940

aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg ggttacatcg   3000

aactggatct caacagcggt aagatccttg agagttttcg ccccgaagaa cgttttccaa   3060

tgatgagcac ttttaaagtt ctgctatgtg gcgcggtatt atcccgtatt gacgccgggc   3120

aagagcaact cggtcgccgc atacactatt ctcagaatga cttggttgag tactcaccag   3180

tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa   3240

ccatgagtga taacactgcg gccaacttac ttctgacaac gatcggagga ccgaaggagc   3300

taaccgcttt tttgcacaac atgggggatc atgtaactcg ccttgatcgt tgggaaccgg   3360

agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta gcaatggcaa   3420

caacgttgcg caaactatta actggcgaac tacttactct agcttcccgg caacaattaa   3480

tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc cttccggctg   3540

gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgcggt atcattgcag   3600

cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg   3660

caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg attaagcatt   3720
```

```
ggtaactgtc agaccaagtt tactcatata tactttagat tgatttaaaa cttcattttt    3780

aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaaa atcccttaac    3840

gtgagttttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag    3900

atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg    3960

tggtttgttt gccggatcaa gagctaccaa ctcttttccc gaaggtaact ggcttcagca    4020

gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac cacttcaaga    4080

actctgtagc accgcctaca tacctcgctc tgctaatcct gttaccagtg gctgctgcca    4140

gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc    4200

agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga acgacctaca    4260

ccgaactgag atacctacag cgtgagcatt gagaaagcgc cacgcttccc gaagggagaa    4320

aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg agggagcttc    4380

caggggaaa cgcctggtat ctttatagtc ctgtcgggtt tcgccacctc tgacttgagc    4440

gtcgatttt gtgatgctcg tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg    4500

ccttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt cctgcgttat    4560

cccctgattc tgtggataac cgtattaccg cctttgagtg agctgatacc gctcgccgca    4620

gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca    4680

aaccgcctct ccccgcgcgt tggccgattc attaatgcag agcttgcaat tcgcgcgcga    4740

aggcgaagcg gcatttacgt tgacaccatc gaatggcgca aaacctttcg cggtatggca    4800

tgatagcgcc cggaagagag tcaattcagg gtggtgaatg tgaaaccagt aacgttatac    4860

gatgtcgcag agtatgccgg tgtctcttat cagaccgttt cccgcgtggt gaaccaggcc    4920

agccacgttt ctgcgaaaac gcgggaaaaa gtggaagcgg cgatggcgga gctgaattac    4980

attcccaacc gcgtggcaca acaactggcg ggcaaacagt cgttgctgat tggcgttgcc    5040

acctccagtc tggccctgca cgcgccgtcg caaattgtcg cggcgattaa atctcgcgcc    5100

gatcaactgg gtgccagcgt ggtggtgtcg atggtagaac gaagcggcgt cgaagcctgt    5160

aaagcggcgg tgcacaatct tctcgcgcaa cgggtcagtg gctgatcat taactatccg    5220

ctggatgacc aggatgccat tgctgtggaa gctgcctgca ctaatgttcc ggcgttattt    5280

cttgatgtct ctgaccagac acccatcaac agtattattt tctcccatga agacggtacg    5340

cgactgggcg tggagcatct ggtcgcattg ggtcaccagc aaatcgcgct gttagcgggc    5400

ccattaagtt ctgtctcggc gcgtctgcgt ctggctggct ggcataaata tctcactcgc    5460

aatcaaattc agccgatagc ggaacgggaa ggcgactgga gtgccatgtc cggttttcaa    5520

caaaccatgc aaatgctgaa tgagggcatc gttcccactg cgatgctggt tgccaacgat    5580
```

```
cagatggcgc tgggcgcaat gcgcgccatt accgagtccg ggctgcgcgt tggtgcggat    5640

atctcggtag tgggatacga cgataccgaa gacagctcat gttatatccc gccgtcaacc    5700

accatcaaac aggattttcg cctgctgggg caaaccagcg tggaccgctt gctgcaactc    5760

tctcagggcc aggcggtgaa gggcaatcag ctgttgcccg tctcactggt gaaaagaaaa    5820

accaccctgg cgcccaatac gcaaaccgcc tctccccgcg cgttggccga ttcattaatg    5880

cagctggcac gacaggtttc ccgactggaa agcgggcagt gagcgcaacg caattaatgt    5940

gagttagctc actcatt                                                   5957
```

<210> 134

<211> 5957

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST6

<220>

<221> gene

<222> (142)..(266)

<223> attR1


<220>

<221> gene

<222> (516)..(1175)

<223> CmR


<220>

<221> gene

<222> (1295)..(1379)

<223> inactivated ccdA


<220>

<221> gene

<222> (1517)..(1822)

<223> ccdB


<220>

<221> gene

<222> (1863)..(1987)

<223> attR2


<220>

<221> gene

<222> (2203)..(3369)

<223> lacI


<220>

<221> gene

<222> (4403)..(5260)

<223> ampR


<220>

<221> gene

<222> (5392)..(5847)

<223> f1 (f1 intergenic region)


<400> 134

```
taacgccagg gttttcccag tcacgacgtt gtaaaacgac ggccagtgaa ttgaatttag      60
gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagcttg gatcctctag     120
agcggccgcc gactagtgat cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat     180
gatataaata tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt     240
aaaacacaac atatccagtc actatggcgg ccgctaagtt ggcagcatca cccgacgcac     300
tttgcgccga ataaatacct gtgacggaag atcacttcgc agaataaata aatcctggtg     360
tccctgttga taccgggaag ccctgggcca acttttggcg aaaatgagac gttgatcggc     420
acgtaagagg ttccaacttt caccataatg aaataagatc actaccgggc gtattttttg     480
```

```
agttatcgag attttcagga gctaaggaag ctaaaatgga gaaaaaaatc actggatata    540

ccaccgttga tatatcccaa tggcatcgta aagaacattt tgaggcattt cagtcagttg    600

ctcaatgtac ctataaccag accgttcagc tggatattac ggcctttta aagaccgtaa     660

agaaaaataa gcacaagttt tatccggcct ttattcacat tcttgcccgc ctgatgaatg    720

ctcatccgga attccgtatg gcaatgaaag acggtgagct ggtgatatgg gatagtgttc    780

acccttgtta caccgttttc catgagcaaa ctgaaacgtt ttcatcgctc tggagtgaat    840

accacgacga tttccggcag tttctacaca tatattcgca agatgtggcg tgttacggtg    900

aaaacctggc ctatttccct aaagggttta ttgagaatat gtttttcgtc tcagccaatc    960

cctgggtgag tttcaccagt tttgatttaa acgtggccaa tatggacaac ttcttcgccc   1020

ccgttttcac catgggcaaa tattatacgc aaggcgacaa ggtgctgatg ccgctggcga   1080

ttcaggttca tcatgccgtc tgtgatggct ccatgtcgg cagaatgctt aatgaattac     1140

aacagtactg cgatgagtgg cagggcgggg cgtaaacgcg tggatccggc ttactaaaag    1200

ccagataaca gtatgcgtat ttgcgcgctg attttgcgg tataagaata tatactgata     1260

tgtatacccg aagtatgtca aaaagaggtg tgctatgaag cagcgtatta cagtgacagt    1320

tgacagcgac agctatcagt tgctcaaggc atatatgatg tcaatatctc cggtctggta    1380

agcacaacca tgcagaatga gcccgtcgt ctgcgtgccg aacgctggaa agcggaaaat     1440

caggaaggga tggctgaggt cgcccggttt attgaaatga acggctcttt tgctgacgag   1500

aacagggact ggtgaaatgc agtttaaggt ttacacctat aaaagagaga gccgttatcg    1560

tctgtttgtg gatgtacaga gtgatattat tgacacgccc gggcgacgga tggtgatccc    1620

cctggccagt gcacgtctgc tgtcagataa agtctcccgt gaactttacc cggtggtgca    1680

tatcggggat gaaagctggc gcatgatgac caccgatatg gccagtgtgc cggtctccgt    1740

tatcggggaa gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa acgccattaa    1800

cctgatgttc tggggaatat aaatgtcagg ctcccttata cacagccagt ctgcaggtcg    1860

accatagtga ctggatatgt tgtgtttac agtattatgt agtctgtttt ttatgcaaaa     1920

tctaatttaa tatattgata tttatatcat tttacgtttc tcgttcagct ttcttgtaca    1980

aagtggtgat cgtcgacccg ggaattccgg accggtacct gcaggcgtac cagctttccc    2040

tatagtgagt cgtattagag cttggcgtaa tcatggtcat agctgtttcc tgtgtgaaat    2100

tgttatccgc tcacaattcc acaacata cgagccggaa gcataaagtg taaagcctgg       2160

ggtgcctaat gagtgagcta actcacatta attgcgttgc gctcactgcc cgctttccag    2220

tcgggaaacc tgtcgtgcca gctgcattaa tgaatcggcc aacgcgcggg gagaggcggt    2280

ttgcgtattg ggcgccaggg tggttttct tttcaccagt gagacgggca acagctgatt      2340
```

```
gcccttcacc gcctggccct gagagagttg cagcaagcgg tccacgctgg tttgccccag   2400

caggcgaaaa tcctgtttga tggtggttga cggcgggata taacatgagc tgtcttcggt   2460

atcgtcgtat cccactaccg agatatccgc accaacgcgc agcccggact cggtaatggc   2520

gcgcattgcg cccagcgcca tctgatcgtt ggcaaccagc atcgcagtgg gaacgatgcc   2580

ctcattcagc atttgcatgg tttgttgaaa accggacatg gcactccagt cgccttcccg   2640

ttccgctatc ggctgaattt gattgcgagt gagatattta tgccagccag ccagacgcag   2700

acgcgccgag acagaactta atgggcccgc taacagcgcg atttgctggt gacccaatgc   2760

gaccagatgc tccacgccca gtcgcgtacc gtcttcatgg gagaaaataa tactgttgat   2820

gggtgtctgg tcagagacat caagaaataa cgccggaaca ttagtgcagg cagcttccac   2880

agcaatggca tcctggtcat ccagcggata gttaatgatc agcccactga cccgttgcgc   2940

gagaagattg tgcaccgccg ctttacaggc ttcgacgccg cttcgttcta ccatcgacac   3000

caccacgctg gcacccagtt gatcggcgcg agatttaatc gccgcgacaa tttgcgacgg   3060

cgcgtgcagg gccagactgg aggtggcaac gccaatcagc aacgactgtt tgcccgccag   3120

ttgttgtgcc acgcggttgg gaatgtaatt cagctccgcc atcgccgctt ccactttttc   3180

ccgcgttttc gcagaaacgt ggctggcctg gttcaccacg cgggaaacgg tctgataaga   3240

gacaccggca tactctgcga catcgtataa cgttactggt ttcacattca ccaccctgaa   3300

ttgactctct tccgggcgct atcatgccat accgcgaaag gttttgcgcc attcgatggt   3360

gtcaacgtaa atgccgcttc gccttcgcgc gcgaattgca agctctgcat taatgaatcg   3420

gccaacgcgc ggggagaggc ggtttgcgta ttgggcgctc ttccgcttcc tcgctcactg   3480

actcgctgcg ctcggtcgtt cggctgcggc gagcggtatc agctcactca aaggcggtaa   3540

tacggttatc cacagaatca ggggataacg caggaaagaa catgtgagca aaaggccagc   3600

aaaaggccag gaaccgtaaa aaggccgcgt tgctggcgtt tttccatagg ctccgccccc   3660

ctgacgagca tcacaaaaat cgacgctcaa gtcagaggtg gcgaaacccg acaggactat   3720

aaagatacca ggcgtttccc cctggaagct ccctcgtgcg ctctcctgtt ccgaccctgc   3780

cgcttaccgg atacctgtcc gcctttctcc cttcgggaag cgtggcgctt tctcaatgct   3840

cacgctgtag gtatctcagt tcggtgtagg tcgttcgctc caagctgggc tgtgtgcacg   3900

aacccccccgt tcagcccgac cgctgcgcct tatccggtaa ctatcgtctt gagtccaacc   3960

cggtaagaca cgacttatcg ccactggcag cagccactgg taacaggatt agcagagcga   4020

ggtatgtagg cggtgctaca gagttcttga agtggtggcc taactacggc tacactagaa   4080

ggacagtatt tggtatctgc gctctgctga gccagttac cttcggaaaa agagttggta    4140

gctcttgatc cggcaaacaa accaccgctg gtagcggtgg tttttttgtt tgcaagcagc   4200
```

```
agattacgcg cagaaaaaaa ggatctcaag aagatccttt gatcttttct acggggtctg    4260

acgctcagtg gaacgaaaac tcacgttaag ggattttggt catgagatta tcaaaaagga    4320

tcttcaccta gatcctttta aattaaaaat gaagttttaa atcaatctaa agtatatatg    4380

agtaaacttg gtctgacagt taccaatgct taatcagtga ggcacctatc tcagcgatct    4440

gtctatttcg ttcatccata gttgcctgac tccccgtcgt gtagataact acgatacggg    4500

agggcttacc atctggcccc agtgctgcaa tgataccgcg agacccacgc tcaccggctc    4560

cagatttatc agcaataaac cagccagccg gaagggccga gcgcagaagt ggtcctgcaa    4620

ctttatccgc ctccatccag tctattaatt gttgccggga agctagagta agtagttcgc    4680

cagttaatag tttgcgcaac gttgttgcca ttgctacagg catcgtggtg tcacgctcgt    4740

cgtttggtat ggcttcattc agctccggtt cccaacgatc aaggcgagtt acatgatccc    4800

ccatgttgtg caaaaaagcg gttagctcct tcggtcctcc gatcgttgtc agaagtaagt    4860

tggccgcagt gttatcactc atggttatgg cagcactgca taattctctt actgtcatgc    4920

catccgtaag atgcttttct gtgactggtg agtactcaac caagtcattc tgagaatagt    4980

gtatgcggcg accgagttgc tcttgcccgg cgtcaatacg ggataatacc cgccacata    5040

gcagaacttt aaaagtgctc atcattggaa aacgttcttc ggggcgaaaa ctctcaagga    5100

tcttaccgct gttgagatcc agttcgatgt aacccactcg tgcacccaac tgatcttcag    5160

catcttttac tttcaccagc gtttctgggt gagcaaaaac aggaaggcaa aatgccgcaa    5220

aaaagggaat aagggcgaca cggaaatgtt gaatactcat actcttcctt tttcaatatt    5280

attgaagcat ttatcagggt tattgtctca tgagcggata catatttgaa tgtatttaga    5340

aaaataaaca aataggggtt ccgcgcacat ttccccgaaa agtgccacct gaaattgtaa    5400

acgttaatat tttgttaaaa ttcgcgttaa atttttgtta aatcagctca ttttttaacc    5460

aataggccga aatcggcaaa atcccttata aatcaaaaga atagaccgag atagggttga    5520

gtgttgttcc agtttggaac aagagtccac tattaaagaa cgtggactcc aacgtcaaag    5580

ggcgaaaaac cgtctatcag ggcgatggcc cactacgtga accatcaccc taatcaagtt    5640

ttttggggtc gaggtgccgt aaagcactaa atcggaaccc taaagggagc ccccgattta    5700

gagcttgacg gggaaagccg gcgaacgtgg cgagaaagga agggaagaaa gcgaaaggag    5760

cgggcgctag ggcgctggca agtgtagcgg tcacgctgcg cgtaaccacc acacccgccg    5820

cgcttaatgc gccgctacag ggcgcgtcca ttcgccattc aggctgcgca actgttggga    5880

agggcgatcg gtgcgggcct cttcgctatt acgccagctg gcgaaagggg gatgtgctgc    5940

aaggcgatta agttggg                                                  5957
```

<210> 135

<211> 6025

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST7

<220>

<221> gene

<222> (67)..(589)

<223> CMV promoter


<220>

<221> gene

<222> (782)..(906)

<223> attR1


<220>

<221> gene

<222> (1015)..(1674)

<223> CmR


<220>

<221> gene

<222> (1794)..(1878)

<223> inactivated ccdA


<220>

<221> gene

<222> (2016)..(2321)

<223> ccdB

<220>

<221> gene

<222> (2362)..(2486)

<223> attR2


<220>

<221> gene

<222> (2671)..(3033)

<223> small t & polyA


<220>

<221> gene

<222> (3227)..(3502)

<223> f1


<220>

<221> gene

<222> (3962)..(4822)

<223> ampR


<220>

<221> gene

<222> (5022)..(5661)

<223> ori


<400> 135
```
attatcatga cattaaccta taaaaatagg cgtagtacga ggcccttttca ctcattagat    60

gcatgtcgtt acataactta cggtaaatgg cccgcctggc tgaccgccca acgaccccccg   120

cccattgacg tcaataatga cgtatgttcc catagtaacg ccaataggga ctttccattg   180

acgtcaatgg gtggagtatt tacggtaaac tgcccacttg gcagtacatc aagtgtatca   240

tatgccaagt acgccccta ttgacgtcaa tgacggtaaa tggcccgcct ggcattatgc   300

ccagtacatg accttatggg actttcctac ttggcagtac atctacgtat tagtcatcgc   360
```

```
tattaccatg gtgatgcggt tttggcagta catcaatggg cgtggatagc ggtttgactc    420

acggggattt ccaagtctcc accccattga cgtcaatggg agtttgtttt ggcaccaaaa    480

tcaacgggac tttccaaaat gtcgtaacaa ctccgcccca ttgacgcaaa tgggcggtag    540

gcgtgtacgg tgggaggtct atataagcag agctcgttta gtgaaccgtc agatcgcctg    600

gagacgccat ccacgctgtt ttgacctcca tagaagacac cgggaccgat ccagcctccg    660

gactctagcc taggccgcgg agcggataac aatttcacac aggaaacagc tatgaccatt    720

aggcctttgc aaaaagctat ttaggtgaca ctatagaagg tacgcctgca ggtaccggat    780

cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat gatataaata tcaatatatt    840

aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac atatccagtc    900

actatggcgg ccgcattagg caccccaggc tttacacttt atgcttccgg ctcgtataat    960

gtgtggattt tgagttagga tccgtcgaga ttttcaggag ctaaggaagc taaaatggag   1020

aaaaaaatca ctggatatac caccgttgat atatcccaat ggcatcgtaa agaacatttt   1080

gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct ggatattacg   1140

gcctttttaa agaccgtaaa gaaaaataag cacaagtttt atccggcctt tattcacatt   1200

cttgcccgcc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga cggtgagctg   1260

gtgatatggg atagtgttca cccttgttac accgttttcc atgagcaaac tgaaacgttt   1320

tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat atattcgcaa   1380

gatgtggcgt gttacggtga aaacctggcc tatttcccta aagggtttat tgagaatatg   1440

tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa cgtggccaat   1500

atggacaact tcttcgcccc cgttttcacc atgggcaaat attatacgca aggcgacaag   1560

gtgctgatgc cgctggcgat tcaggttcat catgccgtct gtgatggctt ccatgtcggc   1620

agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc gtaaacgcgt   1680

ggatccggct tactaaaagc cagataacag tatgcgtatt tgcgcgctga tttttgcggt   1740

ataagaatat atactgatat gtatacccga agtatgtcaa aaagaggtgt gctatgaagc   1800

agcgtattac agtgacagtt gacagcgaca gctatcagtt gctcaaggca tatatgatgt   1860

caatatctcc ggtctggtaa gcacaaccat gcagaatgaa gcccgtcgtc tgcgtgccga   1920

acgctggaaa gcggaaaatc aggaagggat ggctgaggtc gcccggttta ttgaaatgaa   1980

cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaaggtt tacacctata   2040

aaagagagag ccgttatcgt ctgtttgtgg atgtacagag tgatattatt gacacgcccg   2100

ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa gtctcccgtg   2160

aactttaccc ggtggtgcat atcggggatg aaagctggcg catgatgacc accgatatgg   2220
```

```
ccagtgtgcc ggtctccgtt atcggggaag aagtggctga tctcagccac cgcgaaaatg    2280

acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc tcccttatac    2340

acagccagtc tgcaggtcga ccatagtgac tggatatgtt gtgttttaca gtattatgta    2400

gtctgttttt tatgcaaaat ctaatttaat atattgatat ttatatcatt ttacgtttct    2460

cgttcagctt tcttgtacaa agtggtgatc gcgtgcatgc gacgtcatag ctctctccct    2520

atagtgagtc gtattataag ctaggcactg gccgtcgttt tacaacgtcg tgactgggaa    2580

aactgctagc ttgggatctt tgtgaaggaa ccttacttct gtggtgtgac ataattggac    2640

aaactaccta cagagattta aagctctaag gtaaatataa aatttttaag tgtataatgt    2700

gttaaactag ctgcatatgc ttgctgcttg agagttttgc ttactgagta tgatttatga    2760

aaatattata cacaggagct agtgattcta attgtttgtg tattttagat tcacagtccc    2820

aaggctcatt tcaggcccct cagtcctcac agtctgttca tgatcataat cagccatacc    2880

acatttgtag aggttttact tgctttaaaa aacctcccac acctccccct gaacctgaaa    2940

cataaaatga atgcaattgt tgttgttaac ttgtttattg cagcttataa tggttacaaa    3000

taaagcaata gcatcacaaa tttcacaaat aaagcatttt tttcactgca ttctagttgt    3060

ggtttgtcca aactcatcaa tgtatcttat catgtctgga tcgatcctgc attaatgaat    3120

cggccaacgc gcggggagag gcggtttgcg tattggctgg cgtaatagcg aagaggcccg    3180

caccgatcgc ccttcccaac agttgcgcag cctgaatggc gaatgggacg cgccctgtag    3240

cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta cacttgccag    3300

cgccctagcg cccgctcctt tcgctttctt cccttccttt ctcgccacgt tcgccggctt    3360

tccccgtcaa gctctaaatc gggggctccc tttagggttc cgatttagtg ctttacggca    3420

cctcgacccc aaaaaacttg attagggtga tggttcacgt agtgggccat cgccctgata    3480

gacggttttt cgccctttga cgttggagtc cacgttcttt aatagtggac tcttgttcca    3540

aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag gattttgcc    3600

gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttaacg cgaattttaa    3660

caaaatatta acgtttacaa tttcaggtgg cacttttcgg ggaaatgtgc gcggaacccc    3720

tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgccag gtcttggact    3780

ggtgagaacg gcttgctcgg cagcttcgat gtgtgctgga gggagaataa aggtctaaga    3840

tgtgcgatag agggaagtcg cattgaatta tgtgctgtgt agggatcgct ggtatcaaat    3900

atgtgtgccc acccctggca tgagacaata accctgataa atgcttcaat aatattgaaa    3960

aaggaagagt atgagtattc aacatttccg tgtcgccctt attccctttt ttgcggcatt    4020

ttgccttcct gtttttgctc acccagaaac gctggtgaaa gtaaaagatg ctgaagatca    4080
```

```
gttgggtgca cgagtgggtt acatcgaact ggatctcaac agcggtaaga tccttgagag    4140

ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagttctgc tatgtggcgc    4200

ggtattatcc cgtattgacg ccgggcaaga gcaactcggt cgccgcatac actattctca    4260

gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg gcatgacagt    4320

aagagaatta tgcagtgctg ccataaccat gagtgataac actgcggcca acttacttct    4380

gacaacgatc ggaggaccga aggagctaac cgcttttttg cacaacatgg gggatcatgt    4440

aactcgcctt gatcgttggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga    4500

caccacgatg cctgtagcaa tggcaacaac gttgcgcaaa ctattaactg gcgaactact    4560

tactctagct cccggcaac aattaataga ctggatggag gcggataaag ttgcaggacc    4620

acttctgcgc tcggcccttc cggctggctg gtttattgct gataaatctg gagccggtga    4680

gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct cccgtatcgt    4740

agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac agatcgctga    4800

gataggtgcc tcactgatta agcattggta actgtcagac caagtttact catatatact    4860

ttagattgat ttaaaacttc attttttaatt taaaaggatc taggtgaaga tcctttttga    4920

taatctcatg ccataacttc gtataatgta tgctatacga agttatggca tgaccaaaat    4980

cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc    5040

ttcttgagat ccttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct    5100

accagcggtg gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg    5160

cttcagcaga gcgcagatac caaatactgt ccttctagtg tagccgtagt taggccacca    5220

cttcaagaac tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc    5280

tgctgccagt ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga    5340

taaggcgcag cggtcgggct gaacgggggg ttcgtgcaca gcccagct tggagcgaac    5400

gacctacacc gaactgagat acctacagcg tgagcattga aaagcgcca cgcttcccga    5460

agggagaaag gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag    5520

ggagcttcca gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg    5580

acttgagcgt cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag    5640

caacgcggcc ttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc    5700

tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagtgag ctgataccgc    5760

tcgccgcagc cgaacgaccg agcgcagcga gtcagtgagc gaggaagcgg aagagcgccc    5820

aatacgcaaa ccgcctctcc ccgcgcgttg gccgattcat taatgcagag cttgcaattc    5880

gcgcgttttt caatattatt gaagcattta tcagggttat tgtctcatga gcggatacat    5940
```

atttgaatgt atttagaaaa ataaacaaat aggggttccg cgcacatttc cccgaaaagt      6000

gccacctgac gtctaagaaa ccatt                                            6025


<210> 136

<211> 6526

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST8

<220>

<221> gene

<222> (23)..(152)

<223> Ppo1h


<220>

<221> gene

<222> (160)..(284)

<223> attR1


<220>

<221> gene

<222> (534)..(1193)

<223> CmR


<220>

<221> gene

<222> (1313)..(1397)

<223> inactivated ccdA


<220>

<221> gene

<222> (1535)..(1840)

<223> ccdB


<220>

<221> gene

<222> (1881)..(2005)

<223> attR2


<220>

<221> gene

<222> (2766)..(3146)

<223> f1


<220>

<221> gene

<222> (3240)..(4090)

<223> ampR


<220>

<221> gene

<222> (4289)..(4869)

<223> ori


<220>

<221> gene

<222> (5564)..(6496)

<223> genR


<400> 136

```
cgtatactcc ggaatattaa tagatcatgg agataattaa aatgataacc atctcgcaaa     60

taaataagta ttttactgtt ttcgtaacag ttttgtaata aaaaaaccta taaatattcc    120

ggattattca taccgtccca ccatcgggcg cggatcatca caagtttgta caaaaaagct    180
```

```
gaacgagaaa cgtaaaatga tataaatatc aatatattaa attagatttt gcataaaaaa    240

cagactacat aatactgtaa aacacaacat atccagtcac tatggcggcc gctaagttgg    300

cagcatcacc cgacgcactt tgcgccgaat aaatacctgt gacggaagat cacttcgcag    360

aataaataaa tcctggtgtc cctgttgata ccgggaagcc ctgggccaac ttttggcgaa    420

aatgagacgt tgatcggcac gtaagaggtt ccaactttca ccataatgaa ataagatcac    480

taccgggcgt attttttgag ttatcgagat tttcaggagc taaggaagct aaaatggaga    540

aaaaaatcac tggatatacc accgttgata tatcccaatg gcatcgtaaa gaacattttg    600

aggcatttca gtcagttgct caatgtacct ataaccagac cgttcagctg gatattacgg    660

ccttttttaaa gaccgtaaag aaaaataagc acaagtttta tccggccttt attcacattc    720

ttgcccgcct gatgaatgct catccggaat tccgtatggc aatgaaagac ggtgagctgg    780

tgatatggga tagtgttcac ccttgttaca ccgtttttcca tgagcaaact gaaacgtttt    840

catcgctctg gagtgaatac cacgacgatt ccggcagtt tctacacata tattcgcaag    900

atgtggcgtg ttacggtgaa aacctggcct atttccctaa agggtttatt gagaatatgt    960

ttttcgtctc agccaatccc tgggtgagtt tcaccagttt tgatttaaac gtggccaata   1020

tggacaactt cttcgccccc gttttcacca tgggcaaata ttatacgcaa ggcgacaagg   1080

tgctgatgcc gctggcgatt caggttcatc atgccgtctg tgatggcttc catgtcggca   1140

gaatgcttaa tgaattacaa cagtactgcg atgagtggca gggcggggcg taaacgcgtg   1200

gatccggctt actaaaagcc agataacagt atgcgtattt gcgcgctgat ttttgcggta   1260

taagaatata tactgatatg tatacccgaa gtatgtcaaa aagaggtgtg ctatgaagca   1320

gcgtattaca gtgacagttg acagcgacag ctatcagttg ctcaaggcat atatgatgtc   1380

aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct gcgtgccgaa   1440

cgctggaaag cggaaaatca ggaagggatg gctgaggtcg cccggtttat tgaaatgaac   1500

ggctcttttg ctgacgagaa cagggactgg tgaaatgcag tttaaggttt acacctataa   1560

aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg acacgcccgg   1620

gcgacggatg gtgatccccc tggccagtgc acgtctgctg tcagataaag tctcccgtga   1680

actttacccg gtggtgcata tcggggatga aagctggcgc atgatgacca ccgatatggc   1740

cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc gcgaaaatga   1800

catcaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct cccttataca   1860

cagccagtct gcaggtcgac catagtgact ggatatgttg tgttttacag tattatgtag   1920

tctgtttttt atgcaaaatc taatttaata tattgatatt tatatcattt tacgtttctc   1980

gttcagcttt cttgtacaaa gtggtgatag cttgtcgaga agtactagag gatcataatc   2040
```

```
agccatacca catttgtaga ggttttactt gctttaaaaa acctcccaca cctccccctg    2100

aacctgaaac ataaaatgaa tgcaattgtt gttgttaact tgtttattgc agcttataat    2160

ggttacaaat aaagcaatag catcacaaat ttcacaaata aagcattttt ttcactgcat    2220

tctagttgtg gtttgtccaa actcatcaat gtatcttatc atgtctggat ctgatcactg    2280

cttgagccta ggagatccga accagataag tgaaatctag ttccaaacta ttttgtcatt    2340

tttaattttc gtattagctt acgacgctac acccagttcc catctatttt gtcactcttc    2400

cctaaataat ccttaaaaac tccatttcca cccctcccag ttcccaacta ttttgtccgc    2460

ccacagcggg gcatttttct tcctgttatg tttttaatca aacatcctgc caactccatg    2520

tgacaaaccg tcatcttcgg ctactttttc tctgtcacag aatgaaaatt tttctgtcat    2580

ctcttcgtta ttaatgtttg taattgactg aatatcaacg cttatttgca gcctgaatgg    2640

cgaatggacg cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc    2700

gtgaccgcta cacttgccag cgccctagcg cccgctcctt tcgctttctt cccttccttt    2760

ctcgccacgt tcgccggctt tccccgtcaa gctctaaatc gggggctccc tttagggttc    2820

cgatttagtg ctttacggca cctcgacccc aaaaaacttg attagggtga tggttcacgt    2880

agtgggccat cgccctgata dacggttttt cgccctttga cgttggagtc cacgttcttt    2940

aatagtggac tcttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt    3000

gatttataag ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa    3060

aaatttaacg cgaatttaa caaaatatta acgtttacaa tttcaggtgg cacttttcgg    3120

ggaaatgtgc gcggaacccc tatttgttta ttttctaaa tacattcaaa tatgtatccg    3180

ctcatgagac aataaccctg ataaatgctt caataatatt gaaaaggaa gagtatgagt    3240

attcaacatt ccgtgtcgc ccttattccc ttttttgcgg cattttgcct tcctgttttt    3300

gctcacccag aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg    3360

ggttacatcg aactggatct caacagcggt aagatccttg agagttttcg ccccgaagaa    3420

cgttttccaa tgatgagcac ttttaaagtt ctgctatgtg gcgcggtatt atcccgtatt    3480

gacgccgggc aagagcaact cggtcgccgc atacactatt ctcagaatga cttggttgag    3540

tactcaccag tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt    3600

gctgccataa ccatgagtga taacactgcg gccaacttac ttctgacaac gatcggagga    3660

ccgaaggagc taaccgcttt tttgcacaac atgggggatc atgtaactcg ccttgatcgt    3720

tgggaaccgg agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta    3780

gcaatggcaa caacgttgcg caaactatta actggcgaac tacttactct agcttcccgg    3840

caacaattaa tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc    3900
```

```
cttccggctg gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgcggt   3960

atcattgcag cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg   4020

gggagtcagg caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg   4080

attaagcatt ggtaactgtc agaccaagtt tactcatata tactttagat tgatttaaaa   4140

cttcattttt aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaaa   4200

atcccttaac gtgagttttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga   4260

tcttcttgag atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg   4320

ctaccagcgg tggtttgttt gccggatcaa gagctaccaa ctctttttcc gaaggtaact   4380

ggcttcagca gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac   4440

cacttcaaga actctgtagc accgcctaca tacctcgctc tgctaatcct gttaccagtg   4500

gctgctgcca gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg   4560

gataaggcgc agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga   4620

acgacctaca ccgaactgag atacctacag cgtgagcatt gagaaagcgc cacgcttccc   4680

gaagggagaa aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg   4740

agggagcttc caggggggaaa cgcctggtat ctttatagtc ctgtcgggtt tcgccacctc   4800

tgacttgagc gtcgattttt gtgatgctcg tcaggggggc ggagcctatg gaaaaacgcc   4860

agcaacgcgg ccttttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt   4920

cctgcgttat cccctgattc tgtggataac cgtattaccg cctttgagtg agctgatacc   4980

gctcgccgca gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc   5040

ctgatgcggt attttctcct tacgcatctg tgcggtattt cacaccgcag accagccgcg   5100

taacctggca aaatcggtta cggttgagta ataaatggat gccctgcgta agcgggtgtg   5160

ggcggacaat aaagtcttaa actgaacaaa atagatctaa actatgacaa taaagtctta   5220

aactagacag aatagttgta aactgaaatc agtccagtta tgctgtgaaa aagcatactg   5280

gactttgtt atggctaaag caaactcttc attttctgaa gtgcaaattg cccgtcgtat   5340

taaagagggg cgtggccaag ggcatggtaa agactatatt cgcggcgttg tgacaattta   5400

ccgaacaact ccgcggccgg gaagccgatc tcggcttgaa cgaattgtta ggtggcggta   5460

cttgggtcga tatcaaagtg catcacttct tcccgtatgc ccaactttgt atagagagcc   5520

actgcgggat cgtcaccgta atctgcttgc acgtagatca cataagcacc aagcgcgttg   5580

gcctcatgct tgaggagatt gatgagcgcg gtggcaatgc cctgcctccg gtgctcgccg   5640

gagactgcga gatcatagat atagatctca ctacgcggct gctcaaacct gggcagaacg   5700

taagccgcga gagcgccaac aaccgcttct tggtcgaagg cagcaagcgc gatgaatgtc   5760
```

```
ttactacgga gcaagttccc gaggtaatcg gagtccggct gatgttggga gtaggtggct    5820

acgtctccga actcacgacc gaaaagatca agagcagccc gcatggattt gacttggtca    5880

gggccgagcc tacatgtgcg aatgatgccc atacttgagc cacctaactt tgttttaggg    5940

cgactgccct gctgcgtaac atcgttgctg ctgcgtaaca tcgttgctgc tccataacat    6000

caaacatcga cccacggcgt aacgcgcttg ctgcttggat gcccgaggca tagactgtac    6060

aaaaaaacag tcataacaag ccatgaaaac cgccactgcg ccgttaccac cgctgcgttc    6120

ggtcaaggtt ctggaccagt tgcgtgagcg catacgctac ttgcattaca gtttacgaac    6180

cgaacaggct tatgtcaact gggttcgtgc cttcatccgt ttccacggtg tgcgtcaccc    6240

ggcaaccttg ggcagcagcg aagtcgaggc atttctgtcc tggctggcga acgagcgcaa    6300

ggtttcggtc tccacgcatc gtcaggcatt ggcggccttg ctgttcttct acggcaaggt    6360

gctgtgcacg gatctgccct ggcttcagga gatcggaaga cctcggccgt cgcggcgctt    6420

gccggtggtg ctgacccccgg atgaagtggt tcgcatcctc ggttttctgg aaggcgagca    6480

tcgtttgttc gcccaggact ctagctatag ttctagtggt tggcta               6526
```

```
<210>  137
<211>  12464
<212>  DNA
<213>  Artificial Sequence


<220>
<223>  pDEST9
<220>
<221>  gene
<222>  (232)..(355)
<223>  attR1


<220>
<221>  gene
<222>  (605)..(1264)
<223>  CmR


<220>
```

```
<221>  gene

<222>  (1384)..(1468)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (1606)..(1911)

<223>  ccdB


<220>

<221>  gene

<222>  (1952)..(2078)

<223>  attR2


<220>

<221>  gene

<222>  (2532)..(2782)

<223>  ori


<220>

<221>  gene

<222>  (3482)..(4282)

<223>  ampR


<220>

<221>  gene

<222>  (5232)..(5365)

<223>  SP6 promoter


<220>

<221>  gene
```

<222>  (5365)..(6965)

<223>  nsP1:non-structural protein 1


<220>

<221>  gene

<222>  (6965)..(9265)

<223>  nsP2:non-structural protein 2


<220>

<221>  gene

<222>  (9265)..(10865)

<223>  nsP3:non-structural protein 3


<220>

<221>  gene

<222>  (161)..(10865)

<223>  nsP4:non-structural protein 4


<400>  137

```
agcaagtggt tccggacagg cttggggggcc gaactggagg tggcactaac atctaggtat      60

gaggtagagg gctgcaaaag tatcctcata gccatggcca ccttggcgag ggacattaag     120

gcgtttaaga aattgagagg acctgttata cacctctacg gcggtcctag attggtgcgt     180

taatacacag aattctgatt ggatcccggt ccgaagcgcg ctttcccatc acaagtttgt     240

acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt     300

tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc     360

cgctaagttg gcagcatcac ccgacgcact ttgcgccgaa taaatacctg tgacggaaga     420

tcacttcgca gaataaataa atcctggtgt ccctgttgat accgggaagc cctgggccaa     480

cttttggcga aaatgagacg ttgatcggca cgtaagaggt tccaactttc accataatga     540

aataagatca ctaccgggcg tattttttga gttatcgaga ttttcaggag ctaaggaagc     600

taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat ggcatcgtaa     660

agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct     720

ggatattacg gcctttttaa agaccgtaaa gaaaaataag cacaagtttt atccggcctt     780
```

```
tattcacatt cttgcccgcc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga    840

cggtgagctg gtgatatggg atagtgttca cccttgttac accgtttttcc atgagcaaac    900

tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat    960

atattcgcaa gatgtggcgt gttacggtga aaacctggcc tatttcccta aagggtttat   1020

tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa   1080

cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaat attatacgca   1140

aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct gtgatggctt   1200

ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc   1260

gtaaagatct ggatccggct tactaaaagc cagataacag tatgcgtatt tgcgcgctga   1320

tttttgcggt ataagaatat atactgatat gtatacccga agtatgtcaa aaagaggtgt   1380

gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt gctcaaggca   1440

tatatgatgt caatatctcc ggtctggtaa gcacaaccat gcagaatgaa gcccgtcgtc   1500

tgcgtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc gcccggttta   1560

ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaaggtt   1620

tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag tgatattatt   1680

gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa   1740

gtctcccgtg aactttaccc ggtggtgcat atcggggatg aaagctggcg catgatgacc   1800

accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga tctcagccac   1860

cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc   1920

tcccttatac acagccagtc tgcaggtcga ccatagtgac tggatatgtt gtgttttaca   1980

gtattatgta gtctgttttt tatgcaaaag tgctaattta atatattgat atttatatca   2040

ttttacgttt ctcgttcagc tttcttgtac aaagtggtga tgggaactcg agttcactag   2100

tcgatcccgc ggccgctttc gaacctaggc aagcatgcgg gcccagtggg taattaattg   2160

aattacatcc ctacgcaaac gttttacggc cgccggtggc cccgcgccc ggcggcccgt   2220

ccttggccgt tgcaggccac tccggtggct cccgtcgtcc ccgacttcca ggcccagcag   2280

atgcagcaac tcatcagcgc cgtaaatgcg ctgacaatga gacagaacgc aattgctcct   2340

gctaggagct taattcgacg aataattgga tttttatttt attttgcaat tggttttaa   2400

tatttccaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa   2460

aaaaaaaaa aaaaaacta gaaatcgcga tttctagtct gcattaatga atcggccaac   2520

gcgcggggag aggcggtttg cgtattgggc gctcttccgc ttcctcgctc actgactcgc   2580

tgcgctcggt cgttcggctg cggcgagcgg tatcagctca ctcaaaggcg gtaatacggt   2640
```

```
tatccacaga  atcaggggat  aacgcaggaa  agaacatgtg  agcaaaaggc  cagcaaaagg  2700

ccaggaaccg  taaaaaggcc  gcgttgctgg  cgttttttcca  taggctccgc  cccctgacg   2760

agcatcacaa  aaatcgacgc  tcaagtcaga  ggtggcgaaa  cccgacagga  ctataaagat  2820

accaggcgtt  tcccccctgga  agctccctcg  tgcgctctcc  tgttccgacc  ctgccgctta  2880

ccggatacct  gtccgccttt  ctcccttcgg  gaagcgtggc  gctttctcaa  tgctcgcgct  2940

gtaggtatct  cagttcggtg  taggtcgttc  gctccaagct  gggctgtgtg  cacgaacccc  3000

ccgttcagcc  cgaccgctgc  gccttatccg  gtaactatcg  tcttgagtcc  aacccggtaa  3060

gacacgactt  atcgccactg  gcagcagcca  ctggtaacag  gattagcaga  gcgaggtatg  3120

taggcggtgc  tacagagttc  ttgaagtggt  ggcctaacta  cggctacact  agaaggacag  3180

tatttggtat  ctgcgctctg  ctgaagccag  ttaccttcgg  aaaaagagtt  ggtagctctt  3240

gatccggcaa  acaaaccacc  gctggtagcg  gtggttttttt  tgtttgcaag  cagcagatta  3300

cgcgcagaaa  aaaaggatct  caagaagatc  ctttgatctt  ttctacgggg  tctgacgctc  3360

agtggaacga  aaactcacgt  taagggattt  tggtcatgag  attatcaaaa  aggatcttca  3420

cctagatcct  tttaaattaa  aaatgaagtt  ttaaatcaat  ctaaagtata  tatgagtaaa  3480

cttggtctga  cagttaccaa  tgcttaatca  gtgaggcacc  tatctcagcg  atctgtctat  3540

ttcgttcatc  catagttgcc  tgactccccg  tcgtgtagat  aactacgata  cgggagggct  3600

taccatctgg  ccccagtgct  gcaatgatac  cgcgagaccc  acgctcaccg  gctccagatt  3660

tatcagcaat  aaaccagcca  gccggaaggg  ccgagcgcag  aagtggtcct  gcaactttat  3720

ccgcctccat  ccagtctatt  aattgttgcc  gggaagctag  agtaagtagt  tcgccagtta  3780

atagtttgcg  caacgttgtt  gccattgcta  caggcatcgt  ggtgtcacgc  tcgtcgtttg  3840

gtatggcttc  attcagctcc  ggttcccaac  gatcaaggcg  agttacatga  tcccccatgt  3900

tgtgcaaaaa  agcggttagc  tccttcggtc  ctccgatcgt  tgtcagaagt  aagttggccg  3960

cagtgttatc  actcatggtt  atggcagcac  tgcataattc  tcttactgtc  atgccatccg  4020

taagatgctt  ttctgtgact  ggtgagtact  caaccaagtc  attctgagaa  tagtgtatgc  4080

ggcgaccgag  ttgctcttgc  ccggcgtcaa  tacgggataa  taccgcgcca  catagcagaa  4140

ctttaaaagt  gctcatcatt  ggaaaacgtt  cttcggggcg  aaaactctca  aggatcttac  4200

cgctgttgag  atccagttcg  atgtaaccca  ctcgtgcacc  caactgatct  tcagcatctt  4260

ttactttcac  cagcgtttct  gggtgagcaa  aaacaggaag  gcaaaatgcc  gcaaaaaagg  4320

gaataagggc  gacacggaaa  tgttgaatac  tcatactctt  cctttttcaa  tattattgaa  4380

gcatttatca  gggttattgt  ctcatgagcg  gatacatatt  tgaatgtatt  tagaaaaata  4440

aacaaatagg  ggttccgcgc  acatttcccc  gaaaagtgcc  acctgacgtc  taagaaacca  4500
```

ttattatcat gacattaacc tataaaaata ggcgtatcac gaggcccttt cgtctcgcgc    4560

gtttcggtga tgacggtgaa aacctctgac acatgcagct cccggagacg gtcacagctt    4620

ctgtctaagc ggatgccggg agcagacaag cccgtcaggg cgcgtcagcg ggtgttggcg    4680

ggtgtcgggg ctggcttaac tatgcggcat cagagcagat tgtactgaga gtgcaccata    4740

tcgacgctct cccttatgcg actcctgcat taggaagcag cccagtacta ggttgaggcc    4800

gttgagcacc gccgccgcaa ggaatggtgc atgcaaggag atggcgccca acagtccccc    4860

ggccacgggg cctgccacca tacccacgcc gaaacaagcg ctcatgagcc cgaagtggcg    4920

agcccgatct tccccatcgg tgatgtcggc gatataggcg ccagcaaccg cacctgtggc    4980

gccggtgatg ccggccacga tgcgtccggc gtagaggatc tggctagcga tgaccctgct    5040

gattggttcg ctgaccattt ccggggtgcg gaacggcgtt accagaaact cagaaggttc    5100

gtccaaccaa accgactctg acggcagttt acgagagaga tgatagggtc tgcttcagta    5160

agccagatgc tacacaatta ggcttgtaca tattgtcgtt agaacgcggc tacaattaat    5220

acataacctt atgtatcata cacatacgat ttaggtgaca ctatagatgg cggatgtgtg    5280

acatacgacga cgccaaaaga ttttgttcca gctcctgcca cctccgctac gcgagagatt    5340

aaccacccac gatggccgcc aaagtgcatg ttgatattga ggctgacagc ccattcatca    5400

agtctttgca gaaggcattt ccgtcgttcg aggtggagtc attgcaggtc acaccaaatg    5460

accatgcaaa tgccagagca ttttcgcacc tggctaccaa attgatcgag caggagactg    5520

acaaagacac actcatcttg gatatcggca gtgcgccttc caggagaatg atgtctacgc    5580

acaaatacca ctgcgtatgc cctatgcgca gcgcagaaga ccccgaaagg ctcgatagct    5640

acgcaaagaa actggcagcg gcctccggga aggtgctgga tagagagatc gcaggaaaaa    5700

tcaccgacct gcagaccgtc atggctacgc cagacgctga atctcctacc ttttgcctgc    5760

atacagacgt cacgtgtcgt acggcagccg aagtggccgt ataccaggac gtgtatgctg    5820

tacatgcacc aacatcgctg taccatcagg cgatgaaagg tgtcagaacg gcgtattgga    5880

ttgggtttga caccacccccg tttatgtttg acgcgctagc aggcgcgtat ccaacctacg    5940

ccacaaactg ggccgacgag caggtgttac aggccaggaa cataggactg tgtgcagcat    6000

ccttgactga gggaagactc ggcaaactgt ccattctccg caagaagcaa ttgaaacctt    6060

gcgacacagt catgttctcg gtaggatcta cattgtacac tgagagcaga aagctactga    6120

ggagctggca cttaccctcc gtattccacc tgaaaggtaa acaatccttt acctgtaggt    6180

gcgataccat cgtatcatgt gaagggtacg tagttaagaa aatcactatg tgccccggcc    6240

tgtacggtaa aacggtaggg tacgccgtga cgtatcacgc ggagggattc ctagtgtgca    6300

agaccacaga cactgtcaaa ggagaaagag tctcattccc tgtatgcacc tacgtcccct    6360

```
caaccatctg tgatcaaatg actggcatac tagcgaccga cgtcacaccg gaggacgcac    6420

agaagttgtt agtgggattg aatcagagga tagttgtgaa cggaagaaca cagcgaaaca    6480

ctaacacgat gaagaactat ctgcttccga ttgtggccgt cgcatttagc aagtgggcga    6540

gggaatacaa ggcagacctt gatgatgaaa aacctctggg tgtccgagag aggtcactta    6600

cttgctgctg cttgtgggca tttaaaacga ggaagatgca caccatgtac aagaaaccag    6660

acacccagac aatagtgaag gtgccttcag agtttaactc gttcgtcatc ccgagcctat    6720

ggtctacagg cctcgcaatc ccagtcagat cacgcattaa gatgcttttg gccaagaaga    6780

ccaagcgaga gttaatacct gttctcgacg cgtcgtcagc cagggatgct gaacaagagg    6840

agaaggagag gttggaggcc gagctgacta gagaagcctt accacccctc gtccccatcg    6900

cgccggcgga gacgggagtc gtcgacgtcg acgttgaaga actagagtat cacgcaggtg    6960

caggggtcgt ggaaacacct cgcagcgcgt tgaaagtcac cgcacagccg aacgacgtac    7020

tactaggaaa ttacgtagtt ctgtccccgc agaccgtgct caagagctcc aagttggccc    7080

ccgtgcaccc tctagcagag caggtgaaaa taataacaca taacgggagg gccggcggtt    7140

accaggtcga cggatatgac ggcagggtcc tactaccatg tggatcggcc attccggtcc    7200

ctgagtttca ggctttgagc gagagcgcca ctatggtgta caacgaaagg gagttcgtca    7260

acaggaaact ataccatatt gccgttcacg gaccctcgct gaacaccgac gaggagaact    7320

acgagaaagt cagagctgaa agaactgacg ccgagtacgt gttcgacgta gataaaaaat    7380

gctgcgtcaa gagagaggaa gcgtcgggtt tggtgttggt gggagagcta accaaccccc    7440

cgttccatga attcgcctac gaagggctga agatcaggcc gtcggcacca tataagacta    7500

cagtagtagg agtctttggg gttccgggat caggcaagtc tgctattatt aagagcctcg    7560

tgaccaaaca cgatctggtc accagcggca agaaggagaa ctgccaggaa atagttaacg    7620

acgtgaagaa gcaccgcggg aaggggacaa gtagggaaaa cagtgactcc atcctgctaa    7680

acgggtgtcg tcgtgccgtg gacatcctat atgtggacga ggctttcgct tgccattccg    7740

gtactctgct ggccctaatt gctcttgtta aacctcggag caaagtggtg ttatgcggag    7800

accccaagca atgcggattc ttcaatatga tgcagcttaa ggtgaacttc aaccacaaca    7860

tctgcactga agtatgtcat aaaagtatat ccagacgttg cacgcgtcca gtcacggcca    7920

tcgtgtctac gttgcactac ggaggcaaga tgcgcacgac caacccgtgc aacaaaccca    7980

taatcataga caccacagga cagaccaagc ccaagccagg agacatcgtg ttaacatgct    8040

tccgaggctg ggcaaagcag ctgcagttgg actaccgtgg acacgaagtc atgacagcag    8100

cagcatctca gggcctcacc cgcaaagggg tatacgccgt aaggcagaag gtgaatgaaa    8160

atccccttgta tgcccctgcg tcggagcacg tgaatgtact gctgacgcgc actgaggata    8220
```

```
ggctggtgtg gaaaacgctg gccggcgatc cctggattaa ggtcctatca aacattccac   8280

agggtaactt tacggccaca ttggaagaat ggcaagaaga acacgacaaa ataatgaagg   8340

tgattgaagg accggctgcg cctgtggacg cgttccagaa caaagcgaac gtgtgttggg   8400

cgaaaagcct ggtgcctgtc ctggacactg ccggaatcag attgacagca gaggagtgga   8460

gcaccataat tacagcattt aaggaggaca gagcttactc tccagtggtg gccttgaatg   8520

aaatttgcac caagtactat ggagttgacc tggacagtgg cctgttttct gccccgaagg   8580

tgtccctgta ttacgagaac aaccactggg ataacagacc tggtggaagg atgtatggat   8640

tcaatgccgc aacagctgcc aggctggaag ctagacatac cttcctgaag gggcagtggc   8700

atacgggcaa gcaggcagtt atcgcagaaa gaaaaatcca accgctttct gtgctggaca   8760

atgtaattcc tatcaaccgc aggctgccgc acgccctggt ggctgagtac aagacggtta   8820

aaggcagtag ggttgagtgg ctggtcaata aagtaagagg gtaccacgtc ctgctggtga   8880

gtgagtacaa cctggctttg cctcgacgca gggtcacttg gttgtcaccg ctgaatgtca   8940

caggcgccga taggtgctac gacctaagtt taggactgcc ggctgacgcc ggcaggttcg   9000

acttggtctt tgtgaacatt cacacggaat tcagaatcca ccactaccag cagtgtgtcg   9060

accacgccat gaagctgcag atgcttgggg gagatgcgct acgactgcta aaacccggcg   9120

gcatcttgat gagagcttac ggatacgccg ataaaatcag cgaagccgtt gtttcctcct   9180

taagcagaaa gttctcgtct gcaagagtgt tgcgcccgga ttgtgtcacc agcaatacag   9240

aagtgttctt gctgttctcc aactttgaca acggaaagag accctctacg ctacaccaga   9300

tgaataccaa gctgagtgcc gtgtatgccg agaagccat gcacacggcc gggtgtgcac   9360

catcctacag agttaagaga gcagacatag ccacgtgcac agaagcggct gtggttaacg   9420

cagctaacgc ccgtggaact gtaggggatg gcgtatgcag ggccgtggcg aagaaatggc   9480

cgtcagcctt taagggagca gcaacaccag tgggcacaat taaaacagtc atgtgcggct   9540

cgtacccgt catccacgct gtagcgccta atttctctgc cacgactgaa gcggaagggg   9600

accgcgaatt ggccgctgtc taccgggcag tggccgccga agtaaacaga ctgtcactga   9660

gcagcgtagc catcccgctg ctgtccacag gagtgttcag cggcggaaga gataggctgc   9720

agcaatccct caaccatcta ttcacagcaa tggacgccac ggacgctgac gtgaccatct   9780

actgcagaga caaaagttgg gagaagaaaa tccaggaagc cattgacatg aggacggctg   9840

tggagttgct caatgatgac gtggagctga ccacagactt ggtgagagtg cacccggaca   9900

gcagcctggt gggtcgtaag ggctacagta ccactgacgg gtcgctgtac tcgtactttg   9960

aaggtacgaa attcaaccag ctgctattg atatggcaga gatactgacg ttgtggccca   10020

gactgcaaga ggcaaacgaa cagatatgcc tatacgcgct gggcgaaaca atggacaaca  10080
```

```
tcagatccaa atgtccggtg aacgattccg attcatcaac acctcccagg acagtgccct    10140

gcctgtgccg ctacgcaatg acagcagaac ggatcgcccg ccttaggtca caccaagtta    10200

aaagcatggt ggtttgctca tcttttcccc tcccgaaata ccatgtagat ggggtgcaga    10260

aggtaaagtg cgagaaggtt ctcctgttcg acccgacggt accttcagtg gttagtccgc    10320

ggaagtatgc cgcatctacg acggaccact cagatcggtc gttacgaggg tttgacttgg    10380

actggaccac cgactcgtct tccactgcca gcgataccat gtcgctaccc agtttgcagt    10440

cgtgtgacat cgactcgatc tacgagccaa tggctcccat agtagtgacg gctgacgtac    10500

accctgaacc cgcaggcatc gcggacctgg cggcagatgt gcaccctgaa cccgcagacc    10560

atgtggacct ggagaacccg attcctccac cgcgcccgaa gagagctgca taccttgcct    10620

cccgcgcggc ggagcgaccg gtgccggcgc cgagaaagcc gacgcctgcc ccaaggactg    10680

cgtttaggaa caagctgcct ttgacgttcg gcgactttga cgagcacgag gtcgatgcgt    10740

tggcctccgg gattactttc ggagacttcg acgacgtcct gcgactaggc cgcgcgggtg    10800

catatatttt ctcctcggac actggcagcg gacatttaca acaaaaatcc gttaggcagc    10860

acaatctcca gtgcgcacaa ctggatgcgg tccaggagga gaaaatgtac ccgccaaaat    10920

tggatactga gagggagaag ctgttgctgc tgaaaatgca gatgcaccca tcggaggcta    10980

ataagagtcg ataccagtct cgcaaagtgg agaacatgaa agccacggtg gtggacaggc    11040

tcacatcggg ggccagattg tacacgggag cggacgtagg ccgcatacca acatacgcgg    11100

ttcggtaccc ccgccccgtg tactcccta ccgtgatcga aagattctca agccccgatg    11160

tagcaatcgc agcgtgcaac gaatacctat ccagaaatta cccaacagtg gcgtcgtacc    11220

agataacaga tgaatacgac gcatacttgg acatggttga cgggtcggat agttgcttgg    11280

acagagcgac attctgcccg gcgaagctcc ggtgctaccc gaaacatcat gcgtaccacc    11340

agccgactgt acgcagtgcc gtcccgtcac cctttcagaa cacactacag aacgtgctag    11400

cggctgccac caagagaaac tgcaacgtca cgcaaatgcg agaactaccc accatggact    11460

cggcagtgtt caacgtggag tgcttcaagc gctatgcctg ctccggagaa tattgggaag    11520

aatatgctaa acaacctatc cggataacca ctgagaacat cactacctat gtgaccaaat    11580

tgaaaggccc gaaagctgct gccttgttcg ctaagaccca caacttggtt ccgctgcagg    11640

aggttcccat ggacagattc acggtcgaca tgaaacgaga tgtcaaagtc actccaggga    11700

cgaaacacac agaggaaaga cccaaagtcc aggtaattca agcagcggag ccattggcga    11760

ccgcttacct gtgcggcatc cacagggaat tagtaaggag actaaatgct gtgttacgcc    11820

ctaacgtgca cacattgttt gatatgtcgg ccgaagactt tgacgcgatc atcgcctctc    11880

acttccaccc aggagacccg gttctagaga cggacattgc atcattcgac aaaagccagg    11940
```

```
acgactcctt ggctcttaca ggtttaatga tcctcgaaga tctaggggtg gatcagtacc   12000

tgctggactt gatcgaggca gcctttgggg aaatatccag ctgtcaccta ccaactggca   12060

cgcgcttcaa gttcggagct atgatgaaat cgggcatgtt tctgactttg tttattaaca   12120

ctgttttgaa catcaccata gcaagcaggg tactggagca gagactcact gactccgcct   12180

gtgcggcctt catcggcgac gacaacatcg ttcacggagt gatctccgac aagctgatgg   12240

cggagaggtg cgcgtcgtgg gtcaacatgg aggtgaagat cattgacgct gtcatgggcg   12300

aaaaaccccc atattttgt gggggattca tagttttga cagcgtcaca cagaccgcct   12360

gccgtgtttc agacccactt aagcgcctgt tcaagttggg taagccgcta acagctgaag   12420

acaagcagga cgaagacagg cgacgagcac tgagtgacga ggtt              12464
```

```
<210>  138

<211>  6708

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST10

<220>

<221>  gene

<222>  (23)..(152)

<223>  Ppo1h


<220>

<221>  gene

<222>  (337)..(461)

<223>  attR1


<220>

<221>  gene

<222>  (711)..(1370)

<223>  CmR
```

<220>

<221> gene

<222> (1490)..(1574)

<223> inactivated ccdA


<220>

<221> gene

<222> (1712)..(2017)

<223> ccdB


<220>

<221> gene

<222> (2058)..(2182)

<223> attR2


<220>

<221> gene

<222> (3394)..(4369)

<223> ampR


<220>

<221> gene

<222> (4510)..(5164)

<223> ori


<220>

<221> gene

<222> (62)..(5658)

<223> genR


<400> 138

cccggatga agtggttcgc atcctcggtt ttctggaagg cgagcatcgt ttgttcgccc     60

```
aggactctag ctatagttct agtggttggc tacgtatact ccggaatatt aatagatcat    120

ggagataatt aaaatgataa ccatctcgca aataaataag tattttactg ttttcgtaac    180

agttttgtaa taaaaaaacc tataaatatt ccggattatt cataccgtcc caccatcggg    240

cgcggatctc ggtccgaaac catgtcgtac taccatcacc atcaccatca cgattacgat    300

atcccaacga ccgaaaacct gtattttcag ggcatcacaa gtttgtacaa aaaagctgaa    360

cgagaaacgt aaaatgatat aaatatcaat atattaaatt agattttgca taaaaaacag    420

actacataat actgtaaaac acaacatatc cagtcactat ggcggccgct aagttggcag    480

catcacccga cgcactttgc gccgaataaa tacctgtgac ggaagatcac ttcgcagaat    540

aaataaatcc tggtgtccct gttgataccg ggaagccctg gccaactttt ggcgaaaat     600

gagacgttga tcggcacgta agaggttcca actttcacca taatgaaata agatcactac    660

cgggcgtatt ttttgagtta tcgagatttt caggagctaa ggaagctaaa atggagaaaa    720

aaatcactgg atataccacc gttgatatat cccaatggca tcgtaaagaa cattttgagg    780

catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat attacggcct    840

ttttaaagac cgtaaagaaa aataagcaca gtttatatcc ggcctttatt cacattcttg    900

cccgcctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggt gagctggtga    960

tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa acgttttcat   1020

cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat tcgcaagatg   1080

tggcgtgtta cggtgaaaac ctggcctatt tccctaaagg gtttattgag aatatgtttt   1140

tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaacgtg gccaatatgg   1200

acaacttctt cgcccccgtt ttcaccatgg caaatatta tacgcaaggc gacaaggtgc    1260

tgatgccgct ggcgattcag gttcatcatg ccgtctgtga tggcttccat gtcggcagaa   1320

tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa acgcgtggat   1380

ccggcttact aaaagccaga taacagtatg cgtatttgcg cgctgatttt gcggtataa    1440

gaatatatac tgatatgtat acccgaagta tgtcaaaaag aggtgtgcta tgaagcagcg   1500

tattacagtg acagttgaca gcgacagcta tcagttgctc aaggcatata tgatgtcaat   1560

atctccggtc tggtaagcac aaccatgcag aatgaagccc gtcgtctgcg tgccgaacgc   1620

tggaaagcgg aaaatcagga agggatggct gaggtcgccc ggtttattga aatgaacggc   1680

tcttttgctg acgagaacag ggactggtga atgcagttt aaggtttaca cctataaaag   1740

agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca cgcccgggcg   1800

acggatggtg atccccctgg ccagtgcacg tctgctgtca gataaagtct cccgtgaact   1860

ttacccggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg atatggccag   1920
```

```
tgtgccggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg aaaatgacat    1980

caaaaacgcc attaacctga tgttctgggg aatataaatg tcaggctccc ttatacacag    2040

ccagtctgca ggtcgaccat agtgactgga tatgttgtgt tttacagtat tatgtagtct    2100

gtttttatg caaaatctaa tttaatatat tgatatttat atcattttac gtttctcgtt    2160

cagctttctt gtacaaagtg gtgatgccat ggatccggaa ttcaaaggcc tacgtcgacg    2220

agctcaacta gtgcggccgc tttcgaatct agagcctgca gtctcgaggc atgcggtacc    2280

aagcttgtcg agaagtacta gaggatcata atcagccata ccacatttgt agaggtttta    2340

cttgctttaa aaaacctccc acacctcccc ctgaacctga aacataaaat gaatgcaatt    2400

gttgttgtta acttgtttat tgcagcttat aatggttaca aataaagcaa tagcatcaca    2460

aatttcacaa ataaagcatt tttttcactg cattctagtt gtggtttgtc caaactcatc    2520

aatgtatctt atcatgtctg gatctgatca ctgcttgagc ctaggagatc cgaaccagat    2580

aagtgaaatc tagttccaaa ctattttgtc atttttaatt ttcgtattag cttacgacgc    2640

tacacccagt tcccatctat tttgtcactc ttccctaaat aatccttaaa aactccattt    2700

ccacccctcc cagttcccaa ctattttgtc cgcccacagc ggggcatttt tcttcctgtt    2760

atgtttttaa tcaaacatcc tgccaactcc atgtgacaaa ccgtcatctt cggctacttt    2820

ttctctgtca cagaatgaaa atttttctgt catctcttcg ttattaatgt ttgtaattga    2880

ctgaatatca acgcttattt gcagcctgaa tggcgaatgg gacgcgccct gtagcggcgc    2940

attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc gctacacttg ccagcgccct    3000

agcgcccgct cctttcgctt tcttcccttc ctttctcgcc acgttcgccg gctttccccg    3060

tcaagctcta aatcggggc tccctttagg gttccgattt agtgctttac ggcacctcga    3120

ccccaaaaaa cttgattagg gtgatggttc acgtagtggg ccatcgccct gatagacggt    3180

ttttcgccct ttgacgttgg agtccacgtt ctttaatagt ggactcttgt tccaaactgg    3240

aacaacactc aaccctatct cggtctattc ttttgattta taggatttt tgccgatttc    3300

ggcctattgg ttaaaaaatg agctgattta caaaaattt aacgcgaatt ttaacaaaat    3360

attaacgttt acaatttcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg    3420

tttattttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat    3480

gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat    3540

tccctttttt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt    3600

aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag    3660

cggtaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga gcactttaa    3720

agttctgcta tgtggcgcgg tattatcccg tattgacgcc gggcaagagc aactcggtcg    3780
```

```
ccgcatacac tattctcaga atgacttggt tgagtactca ccagtcacag aaaagcatct    3840

tacggatggc atgacagtaa gagaattatg cagtgctgcc ataaccatga gtgataacac    3900

tgcggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg ctttttttgca   3960

caacatgggg gatcatgtaa ctcgccttga tcgttgggaa ccggagctga atgaagccat    4020

accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact    4080

attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc    4140

ggataaagtt gcaggaccac ttctgcgctc ggcccttccg gctggctggt ttattgctga    4200

taaatctgga gccggtgagc gtgggtctcg cggtatcatt gcagcactgg ggccagatgg    4260

taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg    4320

aaatagacag atcgctgaga taggtgcctc actgattaag cattggtaac tgtcagacca    4380

agtttactca tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta    4440

ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt tttcgttcca    4500

ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt tttttctgcg    4560

cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt gtttgccgga    4620

tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaaa    4680

tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg tagcaccgcc    4740

tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg ataagtcgtg    4800

tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcggt cgggctgaac    4860

ggggggttcg tgcacacagc ccagcttgga gcgaacgacc tacaccgaac tgagatacct    4920

acagcgtgag cattgagaaa gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc    4980

ggtaagcggc agggtcggaa caggagagcg cacgagggag cttccagggg gaaacgcctg    5040

gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat ttttgtgatg    5100

ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt tacggttcct    5160

ggccttttgc tggccttttg ctcacatgtt ctttcctgcg ttatcccctg attctgtgga    5220

taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa cgaccgagcg    5280

cagcgagtca gtgagcgagg aagcggaaga gcgcctgatg cggtattttc tccttacgca    5340

tctgtgcggt atttcacacc gcagaccagc cgcgtaacct ggcaaaatcg gttacggttg    5400

agtaataaat ggatgccctg cgtaagcggg tgtgggcgga cataaagtc ttaaactgaa     5460

caaaatagat ctaaactatg acaataaagt cttaaactag acagaatagt tgtaaactga    5520

aatcagtcca gttatgctgt gaaaaagcat actggacttt tgttatggct aaagcaaact    5580

cttcattttc tgaagtgcaa attgcccgtc gtattaaaga ggggcgtggc caagggcatg    5640
```

gtaaagacta tattcgcggc gttgtgacaa tttaccgaac aactccgcgg ccgggaagcc 5700

gatctcggct tgaacgaatt gttaggtggc ggtacttggg tcgatatcaa agtgcatcac 5760

ttcttcccgt atgcccaact ttgtatagag agccactgcg ggatcgtcac cgtaatctgc 5820

ttgcacgtag atcacataag caccaagcgc gttggcctca tgcttgagga gattgatgag 5880

cgcggtggca atgccctgcc tccggtgctc gccggagact gcgagatcat agatatagat 5940

ctcactacgc ggctgctcaa acctgggcag aacgtaagcc gcgagagcgc caacaaccgc 6000

ttcttggtcg aaggcagcaa gcgcgatgaa tgtcttacta cggagcaagt tcccgaggta 6060

atcggagtcc ggctgatgtt gggagtaggt ggctacgtct ccgaactcac gaccgaaaag 6120

atcaagagca gcccgcatgg atttgacttg gtcagggccg agcctacatg tgcgaatgat 6180

gcccatactt gagccaccta actttgtttt agggcgactg ccctgctgcg taacatcgtt 6240

gctgctgcgt aacatcgttg ctgctccata acatcaaaca tcgacccacg gcgtaacgcg 6300

cttgctgctt ggatgcccga ggcatagact gtacaaaaaa acagtcataa caagccatga 6360

aaaccgccac tgcgccgtta ccaccgctgc gttcggtcaa ggttctggac cagttgcgtg 6420

agcgcatacg ctacttgcat tacagtttac gaaccgaaca ggcttatgtc aactgggttc 6480

gtgccttcat ccgtttccac ggtgtgcgtc acccggcaac cttgggcagc agcgaagtcg 6540

aggcatttct gtcctggctg gcgaacgagc gcaaggtttc ggtctccacg catcgtcagg 6600

cattggcggc cttgctgttc ttctacggca aggtgctgtg cacggatctg ccctggcttc 6660

aggagatcgg aagacctcgg ccgtcgcggc gcttgccggt ggtgctga 6708

<210> 139

<211> 7026

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST11

<220>

<221> gene

<222> (4)..(479)

<223> Tetp ((tet operator) 7 and min hCMV promoter)

<220>

<221>    gene

<222>    (514)..(638)

<223>    attR1


<220>

<221>    gene

<222>    (888)..(1547)

<223>    CmR


<220>

<221>    gene

<222>    (1667)..(1751)

<223>    inactivated ccdA


<220>

<221>    gene

<222>    (1889)..(2194)

<223>    ccdB


<220>

<221>    gene

<222>    (2235)..(2359)

<223>    attR2


<220>

<221>    gene

<222>    (2402)..(4132)

<223>    polyA


<220>

<221>    gene

<222> (4347)..(4803)

<223> f1 ori


<220>

<221> gene

<222> (4940)..(5797)

<223> ampR


<400> 139
```
cgagtttacc actccctatc agtgatagag aaaagtgaaa gtcgagttta ccactcccta      60

tcagtgatag agaaaagtga aagtcgagtt taccactccc tatcagtgat agagaaaagt     120

gaaagtcgag ttaccactc cctatcagtg atagagaaaa gtgaaagtcg agtttaccac     180

tccctatcag tgatagagaa aagtgaaagt cgagtttacc actccctatc agtgatagag     240

aaaagtgaaa gtcgagttta ccactcccta tcagtgatag agaaaagtga aagtcgagct     300

cggtacccgg gtcgagtagg cgtgtacggt gggaggccta tataagcaga gctcgtttag     360

tgaaccgtca gatcgcctgg agacgccatc cacgctgttt tgacctccat agaagacacc     420

gggaccgatc cagcctccgc ggccccgaat tcgagctcgg tacccgggga tcctctagag     480

tcgaggtcga cggtatcgat aagcttgata tcaacaagtt tgtacaaaaa agctgaacga     540

gaaacgtaaa atgatataaa tatcaatata ttaaattaga ttttgcataa aaaacagact     600

acataatact gtaaaacaca acatatccag tcactatggc ggccgctaag ttggcagcat     660

cacccgacgc actttgcgcc gaataaatac ctgtgacgga agatcacttc gcagaataaa     720

taaatcctgg tgtccctgtt gataccggga gccctgggc caacttttgg cgaaaatgag     780

acgttgatcg gcacgtaaga ggttccaact ttcaccataa tgaaataaga tcactaccgg     840

gcgtatttt tgagttatcg agattttcag gagctaagga agctaaaatg gagaaaaaaa     900

tcactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat     960

ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt    1020

taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc    1080

gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacggtgag ctggtgatat    1140

gggatagtgt tcacccttgt tacaccgttt ccatgagca aactgaaacg ttttcatcgc    1200

tctggagtga ataccacgac gatttccggc agtttctaca catatattcg caagatgtgg    1260

cgtgttacgg tgaaaacctg gcctatttcc ctaaagggtt tattgagaat atgttttttcg    1320

tctcagccaa tccctgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca    1380
```

```
acttcttcgc ccccgttttc accatgggca aatattatac gcaaggcgac aaggtgctga    1440

tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc    1500

ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaaga tctggatccg    1560

gcttactaaa agccagataa cagtatgcgt atttgcgcgc tgattttgc ggtataagaa     1620

tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat    1680

tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatatc    1740

tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg    1800

aaagcggaaa atcaggaagg gatggctgag gtcgcccggt ttattgaaat gaacggctct    1860

tttgctgacg agaacaggga ctggtgaaat gcagtttaag gtttacacct ataaaagaga    1920

gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg    1980

gatggtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta    2040

cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata tggccagtgt    2100

gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa    2160

aaacgccatt aacctgatgt ctggggaat ataaatgtca ggctccctta tacacagcca     2220

gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctgtt    2280

ttttatgcaa aatctaattt aatatattga tatttatatc attttacgtt tctcgttcag    2340

ctttcttgta caaagtggtt gatatcgaat tcctgcagcc cggggatcc actagttcta     2400

gagcactgcg atgagtggca gggcggggcg taattttttt aaggcagtta ttggtgccct    2460

taaacgcctg gtgctacgcc tgaataagtg ataataagcg gatgaatggc agaaattcgc    2520

cggatctttg tgaaggaacc ttacttctgt ggtgtgacat aattggacaa actacctaca    2580

gagatttaaa gctctaaggt aaatataaaa tttttaagtg tataatgtgt taaactactg    2640

attctaattg tttgtgtatt ttagattcca acctatggaa ctgatgaatg ggagcagtgg    2700

tggaatgcct ttaatgagga aaacctgttt tgctcagaag aaatgccatc tagtgatgat    2760

gaggctactg ctgactctca acattctact cctccaaaaa agaagagaaa ggtagaagac    2820

cccaaggact ttccttcaga attgctaagt tttttgagtc atgctgtgtt tagtaataga    2880

actcttgctt gctttgctat ttacaccaca aaggaaaaag ctgcactgct atacaagaaa    2940

attatggaaa aatattctgt aacctttata agtaggcata acagttataa tcataacata    3000

ctgttttttc ttactccaca caggcataga gtgtctgcta ttaataacta tgctcaaaaa    3060

ttgtgtacct ttagcttttt aatttgtaaa ggggttaata aggaatattt gatgtatagt    3120

gccttgacta gagatcataa tcagccatac cacatttgta gaggttttac ttgctttaaa    3180

aaacctccca cacctccccc tgaacctgaa acataaaatg aatgcaattg ttgttgttaa    3240
```

```
cttgtttatt gcagcttata atggttacaa ataaagcaat agcatcacaa atttcacaaa   3300

taaagcattt ttttcactgc attctagttg tggtttgtcc aaactcatca atgtatctta   3360

tcatgtctgg atccccagga agctcctctg tgtcctcata aaccctaacc tcctctactt   3420

gagaggacat tccaatcata ggctgcccat ccaccctctg tgtcctcctg ttaattaggt   3480

cacttaacaa aaaggaaatt gggtaggggt ttttcacaga ccgctttcta agggtaattt   3540

taaaatatct gggaagtccc ttccactgct gtgttccaga agtgttggta aacagcccac   3600

aaatgtcaac agcagaaaca tacaagctgt cagctttgca caagggccca acaccctgct   3660

catcaagaag cactgtggtt gctgtgttag taatgtgcaa aacaggaggc acattttccc   3720

cacctgtgta ggttccaaaa tatctagtgt tttcattttt acttggatca ggaacccagc   3780

actccactgg ataagcatta tccttatcca aaacagcctt gtggtcagtg ttcatctgct   3840

gactgtcaac tgtagcattt tttggggtta cagtttgagc aggatatttg gtcctgtagt   3900

ttgctaacac accctgcagc tccaaaggtt ccccaccaac agcaaaaaaa tgaaaatttg   3960

acccttgaat gggttttcca gcaccatttt catgagtttt ttgtgtccct gaatgcaagt   4020

ttaacatagc agttacccca ataacctcag ttttaacagt aacagcttcc cacatcaaaa   4080

tatttccaca ggttaagtcc tcatttaaat taggcaaagg aattgctcta gagcggccgc   4140

caccgcggtg gagctccaat tcgccctata gtgagtcgta ttacgcgcgc tcactggccg   4200

tcgttttaca acgtcgtgac tgggaaaacc ctggcgttac ccaacttaat cgccttgcag   4260

cacatccccc tttcgccagc tggcgtaata gcgaagaggc ccgcaccgat cgcccttccc   4320

aacagttgcg cagcctgaat ggcgaatggg acgcgccctg tagcggcgca ttaagcgcgg   4380

cgggtgtggt ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcccgctc   4440

ctttcgcttt cttcccttcc tttctcgcca cgttcgccgg ctttccccgt caagctctaa   4500

atcggggggct ccctttaggg ttccgattta gtgctttacg gcacctcgac cccaaaaaac   4560

ttgattaggg tgatggttca cgtagtgggc catcgccctg atagacggtt tttcgccctt   4620

tgacgttgga gtccacgttc tttaatagtg gactcttgtt ccaaactgga acaacactca   4680

accctatctc ggtctattct tttgatttat aagggatttt gccgatttcg gcctattggt   4740

taaaaaatga gctgatttaa caaaaattta cgcgaattt taacaaaata ttaacgctta   4800

caatttaggt ggcactttc ggggaaatgt gcgcggaacc cctatttgtt tatttttcta   4860

aatacattca aatatgtatc cgctcatgag acaataaccc tgataaatgc ttcaataata   4920

ttgaaaaagg aagagtatga gtattcaaca tttccgtgtc gcccttattc ccttttttgc   4980

ggcattttgc cttcctgttt ttgctcaccc agaaacgctg gtgaaagtaa aagatgctga   5040

agatcagttg ggtgcacgag tgggttacat cgaactggat ctcaacagcg gtaagatcct   5100
```

```
tgagagtttt cgccccgaag aacgttttcc aatgatgagc acttttaaag ttctgctatg    5160

tggcgcggta ttatcccgta ttgacgccgg gcaagagcaa ctcggtcgcc gcatacacta    5220

ttctcagaat gacttggttg agtactcacc agtcacagaa aagcatctta cggatggcat    5280

gacagtaaga gaattatgca gtgctgccat aaccatgagt gataacactg cggccaactt    5340

acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca acatggggga    5400

tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac caaacgacga    5460

gcgtgacacc acgatgcctg tagcaatggc aacaacgttg cgcaaactat taactggcga    5520

actacttact ctagcttccc ggcaacaatt aatagactgg atggaggcgg ataaagttgc    5580

aggaccactt ctgcgctcgg cccttccggc tggctggttt attgctgata atctggagc    5640

cggtgagcgt gggtctcgcg gtatcattgc agcactgggg ccagatggta agccctcccg    5700

tatcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa atagacagat    5760

cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag tttactcata    5820

tatactttag attgatttaa aacttcattt ttaatttaaa aggatctagg tgaagatcct    5880

ttttgataat ctcatgacca aaatccctta cgtgagtttt cgttccact gagcgtcaga    5940

ccccgtagaa aagatcaaag gatcttcttg atcctttt tttctgcgcg taatctgctg    6000

cttgcaaaca aaaaaccac cgctaccagc ggtggtttgt ttgccggatc aagagctacc    6060

aactcttttt ccgaaggtaa ctggcttcag cagagcgcag ataccaaata ctgtccttct    6120

agtgtagccg tagttaggcc accacttcaa gaactctgta gcaccgccta catacctcgc    6180

tctgctaatc ctgttaccag tggctgctgc cagtggcgat aagtcgtgtc ttaccgggtt    6240

ggactcaaga cgatagttac cggataaggc gcagcggtcg gctgaacgg ggggttcgtg    6300

cacacagccc agcttggagc gaacgaccta caccgaactg agatacctac agcgtgagct    6360

atgagaaagc gccacgcttc ccgaagggag aaaggcggac aggtatccgg taagcggcag    6420

ggtcggaaca ggagagcgca cgagggagct ccaggggga aacgcctggt atctttatag    6480

tcctgtcggg tttcgccacc tctgacttga gcgtcgattt ttgtgatgct cgtcaggggg    6540

gcggagccta tggaaaaacg ccagcaacgc ggccttttta cggttcctgg ccttttgctg    6600

gccttttgct cacatgttct ttcctgcgtt atcccctgat tctgtggata accgtattac    6660

cgcctttgag tgagctgata ccgctcgccg cagccgaacg accgagcgca gcgagtcagt    6720

gagcgaggaa gcggaagagc gcccaatacg caaaccgcct ctccccgcgc gttggccgat    6780

tcattaatgc agctggcacg acaggtttcc cgactggaaa gcgggcagtg agcgcaacgc    6840

aattaatgtg agttagctca ctcattaggc accccaggct ttacacttta tgcttccggc    6900

tcgtatgttg tgtggaattg tgagcggata acaatttcac acaggaaaca gctatgacca    6960
```

```
tgattacgcc aagcgcgcaa ttaaccctca ctaaagggaa caaaagctgg gtaccgggcc    7020

cccccct                                                              7026
```

<210> 140

<211> 7278

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST12.2

<220>

<221> gene

<222> (86)..(136)

<223> ori


<220>

<221> gene

<222> (220)..(742)

<223> CMV promoter


<220>

<221> gene

<222> (935)..(1059)

<223> attR1


<220>

<221> gene

<222> (1168)..(1827)

<223> CmR


<220>

<221> gene

<222> (1947)..(2031)

<223> inactivated ccdA

<220>

<221> gene

<222> (2169)..(2474)

<223> ccdB

<220>

<221> gene

<222> (2515)..(2639)

<223> attR2

<220>

<221> gene

<222> (2824)..(3186)

<223> small t & polyA

<220>

<221> gene

<222> (3310)..(3378)

<223> lac

<220>

<221> gene

<222> (4363)..(5157)

<223> neo

<220>

<221> gene

<222> (5680)..(6540)

&lt;223&gt;  neo


&lt;400&gt;  140
gggggcgga gcctatggaa aaacgccagc aacgcggcct ttttacggtt cctggccttt      60

tgctggcctt ttgctcacat gttctttcct gcgttatccc ctgattctgt ggataaccgt     120

attaccgcct ttgagtgagc tgataccgct cgccgcagcc gaacgaccga gcgcagcgag     180

tcagtgagcg aggaagcgga agagctcgcg aatgcatgtc gttacataac ttacggtaaa     240

tggcccgcct ggctgaccgc ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt     300

tcccatagta acgccaatag ggactttcca ttgacgtcaa tgggtggagt atttacggta     360

aactgcccac ttggcagtac atcaagtgta tcatatgcca agtacgcccc ctattgacgt     420

caatgacggt aaatggcccg cctggcatta tgcccagtac atgaccttat gggactttcc     480

tacttggcag tacatctacg tattagtcat cgctattacc atggtgatgc ggttttggca     540

gtacatcaat gggcgtggat agcggtttga ctcacgggga tttccaagtc tccaccccat     600

tgacgtcaat gggagtttgt tttggcacca aaatcaacgg gactttccaa aatgtcgtaa     660

caactccgcc ccattgacgc aaatgggcgg taggcgtgta cggtgggagg tctatataag     720

cagagctcgt ttagtgaacc gtcagatcgc ctggagacgc catccacgct gttttgacct     780

ccatagaaga caccgggacc gatccagcct ccggactcta gcctaggccg cgggacggat     840

aacaatttca cacaggaaac agctatgacc attaggcctt tgcaaaaagc tatttaggtg     900

acactataga aggtacgcct gcaggtaccg gatcacaagt ttgtacaaaa aagctgaacg     960

agaaacgtaa aatgatataa atatcaatat attaaattag attttgcata aaaaacagac    1020

tacataatac tgtaaaacac aacatatcca gtcactatgg cggccgcatt aggcaccccа    1080

ggctttacac tttatgcttc cggctcgtat aatgtgtgga ttttgagtta ggatccgtcg    1140

agattttcag gagctaagga agctaaaatg gagaaaaaaa tcactggata taccaccgtt    1200

gatatatccc aatggcatcg taaagaacat tttgaggcat ttcagtcagt tgctcaatgt    1260

acctataacc agaccgttca gctggatatt acggcctttt aaagaccgt aaagaaaaat     1320

aagcacaagt tttatccggc ctttattcac attcttgccc gcctgatgaa tgctcatccg    1380

gaattccgta tggcaatgaa agacggtgag ctggtgatat gggatagtgt tcacccttgt    1440

tacaccgttt tccatgagca aactgaaacg ttttcatcgc tctggagtga ataccacgac    1500

gatttccggc agtttctaca catatattcg caagatgtgg cgtgttacgg tgaaaacctg    1560

gcctatttcc ctaaagggtt tattgagaat atgtttttcg tctcagccaa tccctgggtg    1620

agtttcacca gttttgattt aaacgtggcc aatatggaca acttcttcgc ccccgttttc    1680

accatgggca aatattatac gcaaggcgac aaggtgctga tgccgctggc gattcaggtt    1740

```
catcatgccg tctgtgatgg cttccatgtc ggcagaatgc ttaatgaatt acaacagtac    1800

tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg gcttactaaa agccagataa    1860

cagtatgcgt atttgcgcgc tgattttgc ggtataagaa tatatactga tatgtatacc    1920

cgaagtatgt caaaaagagg tgtgctatga agcagcgtat tacagtgaca gttgacagcg    1980

acagctatca gttgctcaag gcatatatga tgtcaatatc tccggtctgg taagcacaac    2040

catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg aaagcggaaa atcaggaagg    2100

gatggctgag gtcgcccggt ttattgaaat gaacggctct tttgctgacg agaacaggga    2160

ctggtgaaat gcagtttaag gtttacacct ataaaagaga gagccgttat cgtctgtttg    2220

tggatgtaca gagtgatatt attgacacgc ccgggcgacg gatggtgatc cccctggcca    2280

gtgcacgtct gctgtcagat aaagtctccc gtgaacttta cccggtggtg catatcgggg    2340

atgaaagctg gcgcatgatg accaccgata tggccagtgt gccggtctcc gttatcgggg    2400

aagaagtggc tgatctcagc caccgcgaaa atgacatcaa aaacgccatt aacctgatgt    2460

tctggggaat ataaatgtca ggctccctta tacacagcca gtctgcaggt cgaccatagt    2520

gactggatat gttgtgtttt acagtattat gtagtctgtt ttttatgcaa aatctaattt    2580

aatatattga tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtggtg    2640

atcgcgtgca tgcgacgtca tagctctctc cctatagtga gtcgtattat aagctaggca    2700

ctggccgtcg ttttacaacg tcgtgactgg gaaaactgct agcttgggat ctttgtgaag    2760

gaaccttact tctgtggtgt gacataattg gacaaactac ctacagagat ttaaagctct    2820

aaggtaaata taaaattttt aagtgtataa tgtgttaaac tagctgcata tgcttgctgc    2880

ttgagagttt tgcttactga gtatgattta tgaaaatatt atacacagga gctagtgatt    2940

ctaattgttt gtgtatttta gattcacagt cccaaggctc atttcaggcc cctcagtcct    3000

cacagtctgt tcatgatcat aatcagccat accacatttg tagaggtttt acttgcttta    3060

aaaaacctcc cacacctccc cctgaacctg aaacataaaa tgaatgcaat tgttgttgtt    3120

aacttgttta ttgcagctta taatggttac aaataaagca atagcatcac aaatttcaca    3180

aataaagcat ttttttcact gcattctagt tgtggtttgt ccaaactcat caatgtatct    3240

tatcatgtct ggatcgatcc tgcattaatg aatcggccaa cgcgcgggga gaggcggttt    3300

gcgtattggc tggcgtaata gcgaagaggc ccgcaccgat cgcccttccc aacagttgcg    3360

cagcctgaat ggcgaatggg acgcgccctg tagcggcgca ttaagcgcgg cgggtgtggt    3420

ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcccgctc ctttcgcttt    3480

cttcccttcc tttctcgcca cgttcgccgg ctttccccgt caagctctaa atcgggggct    3540

ccctttaggg ttccgattta gtgctttacg gcacctcgac cccaaaaaac ttgattaggg    3600
```

```
tgatggttca cgtagtgggc catcgccctg atagacggtt tttcgccctt tgacgttgga   3660

gtccacgttc tttaatagtg gactcttgtt ccaaactgga acaacactca accctatctc   3720

ggtctattct tttgatttat aagggatttt gccgatttcg gcctattggt taaaaaatga   3780

gctgatttaa caaatattta acgcgaattt taacaaaata ttaacgttta caatttcgcc   3840

tgatgcggta ttttctcctt acgcatctgt gcggtatttc acaccgcata cgcggatctg   3900

cgcagcacca tggcctgaaa taacctctga aagaggaact tggttaggta ccttctgagg   3960

cggaaagaac cagctgtgga atgtgtgtca gttagggtgt ggaaagtccc caggctcccc   4020

agcaggcaga agtatgcaaa gcatgcatct caattagtca gcaaccaggt gtggaaagtc   4080

cccaggctcc ccagcaggca gaagtatgca aagcatgcat ctcaattagt cagcaaccat   4140

agtcccgccc ctaactccgc ccatcccgcc cctaactccg cccagttccg cccattctcc   4200

gccccatggc tgactaattt tttttattta tgcagaggcc gaggccgcct cggcctctga   4260

gctattccag aagtagtgag gaggcttttt tggaggccta ggcttttgca aaaagcttga   4320

ttcttctgac acaacagtct cgaacttaag gctagagcca ccatgattga acaagatgga   4380

ttgcacgcag gttctccggc cgcttgggtg gagaggctat tcggctatga ctgggcacaa   4440

cagacaatcg gctgctctga tgccgccgtg ttccggctgt cagcgcaggg gcgcccggtt   4500

ctttttgtca gaccgacct gtccggtgcc ctgaatgaac tgcaggacga ggcagcgcgg   4560

ctatcgtggc tggccacgac gggcgttcct tgcgcagctg tgctcgacgt tgtcactgaa   4620

gcgggaaggg actggctgct attgggcgaa gtgccggggc aggatctcct gtcatctcac   4680

cttgctcctg ccgagaaagt atccatcatg gctgatgcaa tgcggcggct gcatacgctt   4740

gatccggcta cctgcccatt cgaccaccaa gcgaaacatc gcatcgagcg agcacgtact   4800

cggatggaag ccggtcttgt cgatcaggat gatctggacg aagagcatca ggggctcgcg   4860

ccagccgaac tgttcgccag gctcaaggcg cgcatgcccg acggcgagga tctcgtcgtg   4920

acccatggcg atgcctgctt gccgaatatc atggtggaaa atggccgctt ttctggattc   4980

atcgactgtg gccggctggg tgtggcggac cgctatcagg acatagcgtt ggctacccgt   5040

gatattgctg aagagcttgg cggcgaatgg gctgaccgct tcctcgtgct ttacggtatc   5100

gccgctcccg attcgcagcg catcgccttc tatcgccttc ttgacgagtt cttctgagcg   5160

ggactctggg gttcgaaatg accgaccaag cgacgcccaa cctgccatca cgatggccgc   5220

aataaaatat ctttattttc attacatctg tgtgttggtt ttttgtgtga atcgatagcg   5280

ataaggatcc gcgtatggtg cactctcagt acaatctgct ctgatgccgc atagttaagc   5340

cagccccgac acccgccaac acccgctgac gcgccctgac gggcttgtct gctcccggca   5400

tccgcttaca gacaagctgt gaccgtctcc gggagctgca tgtgtcagag gttttcaccg   5460
```

```
tcatcaccga aacgcgcgag acgaaagggc ctcgtgatac gcctattttt ataggttaat    5520

gtcatgataa taatggtttc ttagacgtca ggtggcactt ttcggggaaa tgtgcgcgga    5580

acccctattt gtttattttt ctaaatacat tcaaatatgt atccgctcat gagacaataa    5640

ccctgataaa tgcttcaata atattgaaaa aggaagagta tgagtattca acatttccgt    5700

gtcgcccta ttcccttttt tgcggcattt tgccttcctg tttttgctca cccagaaacg    5760

ctggtgaaag taaaagatgc tgaagatcag ttgggtgcac gagtgggtta catcgaactg    5820

gatctcaaca gcggtaagat ccttgagagt tttcgccccg aagaacgttt tccaatgatg    5880

agcacttta aagttctgct atgtggcgcg gtattatccc gtattgacgc cgggcaagag    5940

caactcggtc gccgcataca ctattctcag aatgacttgg ttgagtactc accagtcaca    6000

gaaaagcatc ttacggatgg catgacagta agagaattat gcagtgctgc cataaccatg    6060

agtgataaca ctgcggccaa cttacttctg acaacgatcg gaggaccgaa ggagctaacc    6120

gctttttgc acaacatggg ggatcatgta actcgccttg atcgttggga accggagctg    6180

aatgaagcca taccaaacga cgagcgtgac accacgatgc ctgtagcaat ggcaacaacg    6240

ttgcgcaaac tattaactgg cgaactactt actctagctt cccggcaaca attaatagac    6300

tggatggagg cggataaagt tgcaggacca cttctgcgct cggcccttcc ggctggctgg    6360

tttattgctg ataaatctgg agccggtgag cgtgggtctc gcggtatcat tgcagcactg    6420

gggccagatg gtaagccctc ccgtatcgta gttatctaca cgacggggag tcaggcaact    6480

atggatgaac gaaatagaca gatcgctgag ataggtgcct cactgattaa gcattggtaa    6540

ctgtcagacc aagtttactc atatatactt tagattgatt taaaacttca tttttaattt    6600

aaaaggatct aggtgaagat cctttttgat aatctcatga ccaaaatccc ttaacgtgag    6660

ttttcgttcc actgagcgtc agaccccgta gaaaagatca aaggatcttc ttgagatcct    6720

tttttctgc gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc agcggtggtt    6780

tgtttgccgg atcaagagct accaactctt tttccgaagg taactggctt cagcagagcg    6840

cagataccaa atactgtcct tctagtgtag ccgtagttag gccaccactt caagaactct    6900

gtagcaccgc ctacatacct cgctctgcta atcctgttac cagtggctgc tgccagtggc    6960

gataagtcgt gtcttaccgg gttggactca agacgatagt taccggataa ggcgcagcgg    7020

tcgggctgaa cggggggttc gtgcacacag cccagcttgg agcgaacgac ctacaccgaa    7080

ctgagatacc tacagcgtga gcattgagaa agcgccacgc ttcccgaagg gagaaaggcg    7140

gacaggtatc cggtaagcgg cagggtcgga acaggagagc gcacgaggga gcttccaggg    7200

ggaaacgcct ggtatcttta tagtcctgtc gggtttcgcc acctctgact tgagcgtcga    7260

tttttgtgat gctcgtca                                                   7278
```

<210> 141

<211> 5848

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST13

<220>

<221> gene

<222> (599)..(1458)

<223> ampR


<220>

<221> gene

<222> (3998)..(4123)

<223> attR1


<220>

<221> gene

<222> (4372)..(5031)

<223> CmR


<220>

<221> gene

<222> (5151)..(5235)

<223> inactivated ccdA


<220>

<221> gene

<222> (5373)..(5678)

<223> ccdB

<220>

<221> gene

<222> (5719)..(5843)

<223> attR2


<400> 141
ttcactggcc gtcgttttac aacgtcgtga ctgggaaaac cctggcgtta cccaacttaa        60

tcgccttgca gcacatcccc ctttcgccag ctggcgtaat agcgaagagg cccgcaccga       120

tcgcccttcc caacagttgc gcagcctgaa tggcgaatgg cgcctgatgc ggtattttct       180

ccttacgcat ctgtgcggta tttcacaccg catatggtgc actctcagta caatctgctc       240

tgatgccgca tagttaagcc agccccgaca cccgccaaca cccgctgacg cgccctgacg       300

ggcttgtctg ctcccggcat ccgcttacag acaagctgtg accgtctccg ggagctgcat       360

gtgtcagagg ttttcaccgt catcaccgaa acgcgcgaga cgaaagggcc tcgtgatacg       420

cctattttta taggttaatg tcatgataat aatggtttct tagacgtcag gtggcacttt       480

tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta       540

tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat       600

gagtattcaa catttccgtg tcgcccttat cccttttttt gcggcatttt gccttcctgt       660

ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg       720

agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt ttcgccccga       780

agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccg       840

tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggt       900

tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg       960

cagtgctgcc ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg      1020

aggaccgaag gagctaaccg cttttttgca caacatgggg gatcatgtaa ctcgccttga      1080

tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc      1140

tgtagcaatg gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc      1200

ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc      1260

ggcccttccg gctggctggt ttattgctga taaatctgga gccggtgagc gtgggtctcg      1320

cggtatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac      1380

gacggggagt caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc      1440

actgattaag cattggtaac tgtcagacca gtttactca tatatacttt agattgattt      1500

```
aaaacttcat ttttaattta aaaggatcta ggtgaagatc cttttgata  atctcatgac  1560

caaaatccct taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa  1620

aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc  1680

accgctacca gcggtggttt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt  1740

aactggcttc agcagagcgc agataccaaa tactgttctt ctagtgtagc cgtagttagg  1800

ccaccacttc aagaactctg tagcaccgcc tacatacctc gctctgctaa tcctgttacc  1860

agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt  1920

accggataag cgcagcggt  cgggctgaac ggggggttcg tgcacacagc ccagcttgga  1980

gcgaacgacc tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct  2040

tcccgaaggg agaaaggcgg acaggtatcc ggtaagcggc agggtcggaa caggagagcg  2100

cacgagggag cttccagggg gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca  2160

cctctgactt gagcgtcgat ttttgtgatg ctcgtcaggg gggcggagcc tatggaaaaa  2220

cgccagcaac gcggcctttt tacggttcct ggcctttttgc tggcctttttg ctcacatgtt  2280

ctttcctgcg ttatcccctg attctgtgga taaccgtatt accgcctttg agtgagctga  2340

taccgctcgc cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcggaaga  2400

gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca  2460

cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttagct  2520

cactcattag gcacccccagg ctttacactt tatgcttccg gctcgtatgt tgtgtggaat  2580

tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg ccaagcttgg  2640

ctgcaggtga tgattatcag ccagcagaga ttaaggaaaa cagacaggtt tattgagcgc  2700

ttatctttcc ctttattttt gctgcggtaa gtcgcataaa aaccattctt cataattcaa  2760

tccatttact atgttatgtt ctgaggggag tgaaaattcc cctaattcga tgaagattct  2820

tgctcaattg ttatcagcta tgcgccgacc agaacacctt gccgatcagc caaacgtctc  2880

ttcaggccac tgactagcga taactttccc cacaacggaa caactctcat tgcatgggat  2940

cattgggtac tgtgggttta gtggttgtaa aaacacctga ccgctatccc tgatcagttt  3000

cttgaaggta aactcatcac ccccaagtct ggctatgcag aaatcacctg gctcaacagc  3060

ctgctcaggg tcaacgagaa ttaacattcc gtcaggaaag cttggcttgg agcctgttgg  3120

tgcggtcatg gaattacctt caacctcaag ccagaatgca gaatcactgg cttttttggt  3180

tgtgcttacc catctctccg catcaccttt ggtaaaggtt ctaagcttag gtgagaacat  3240

ccctgcctga acatgagaaa aaacagggta ctcatactca cttctaagtg acggctgcat  3300

actaaccgct tcatacatct cgtagatttc tctggcgatt gaagggctaa attcttcaac  3360
```

```
gctaactttg agaatttttg caagcaatgc ggcgttataa gcatttaatg cattgatgcc   3420

attaaataaa gcaccaacgc ctgactgccc catccccatc ttgtctgcga cagattcctg   3480

ggataagcca agttcatttt tcttttttc ataaattgct ttaaggcgac gtgcgtcctc    3540

aagctgctct tgtgttaatg gtttcttttt tgtgctcata cgttaaatct atcaccgcaa   3600

gggataaata tctaacaccg tgcgtgttga ctatttacc tctggcggtg ataatggttg    3660

catgtactaa ggaggttgta tggaacaacg cataaccctg aaagattatg caatgcgctt   3720

tgggcaaacc aagacagcta aagatctctc acctaccaaa caatgccccc ctgcaaaaaa   3780

taaattcata taaaaaacat acagataacc atctgcggtg ataaattatc tctggcggtg   3840

ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat   3900

gaaggtgacg ctcttaaaaa ttaagccctg aagaagggca gcattcaaag cagaaggctt   3960

tggggtgtgt gatacgaaac gaagcattgg gatcatcaca agtttgtaca aaaaagctga   4020

acgagaaacg taaaatgata taaatatcaa tatattaaat tagattttgc ataaaaaaca   4080

gactacataa tactgtaaaa cacaacatat ccagtcacta tggcggccgc taagttggca   4140

gcatcacccg acgcactttg cgccgaataa atacctgtga cggaagatca cttcgcagaa   4200

taaataaatc ctggtgtccc tgttgatacc gggaagccct gggccaactt ttggcgaaaa   4260

tgagacgttg atcggcacgt aagaggttcc aactttcacc ataatgaaat aagatcacta   4320

ccgggcgtat tttttgagtt atcgagattt tcaggagcta aggaagctaa aatggagaaa   4380

aaaatcactg gatataccac cgttgatata tcccaatggc atcgtaaaga acattttgag   4440

gcatttcagt cagttgctca atgtacctat aaccagaccg ttcagctgga tattacggcc   4500

tttttaaaga ccgtaaagaa aaataagcac aagttttatc cggcctttat tcacattctt   4560

gcccgcctga tgaatgctca tccggaattc cgtatggcaa tgaaagacgg tgagctggtg   4620

atatgggata gtgttcaccc ttgttacacc gttttccatg agcaaactga aacgttttca   4680

tcgctctgga gtgaatacca cgacgatttc cggcagtttc tacacatata ttcgcaagat   4740

gtggcgtgtt acggtgaaaa cctggcctat ttccctaaag ggtttattga gaatatgttt   4800

ttcgtctcag ccaatccctg ggtgagtttc accagttttg atttaaacgt ggccaatatg   4860

gacaacttct tcgcccccgt tttcaccatg ggcaaatatt atacgcaagg cgacaaggtg   4920

ctgatgccgc tggcgattca ggttcatcat gccgtctgtg atggcttcca tgtcggcaga   4980

atgcttaatg aattacaaca gtactgcgat gagtggcagg gcggggcgta aacgcgtgga   5040

tccggcttac taaaagccag ataacagtat gcgtatttgc gcgctgattt ttgcggtata   5100

agaatatata ctgatatgta tacccgaagt atgtcaaaaa gaggtgtgct atgaagcagc   5160

gtattacagt gacagttgac agcgacagct atcagttgct caaggcatat atgatgtcaa   5220
```

```
tatctccggt ctggtaagca caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg    5280

ctggaaagcg gaaaatcagg aagggatggc tgaggtcgcc cggtttattg aaatgaacgg    5340

ctcttttgct gacgagaaca gggactggtg aaatgcagtt taaggtttac acctataaaa    5400

gagagagccg ttatcgtctg tttgtggatg tacagagtga tattattgac acgcccgggc    5460

gacggatggt gatccccctg gccagtgcac gtctgctgtc agataaagtc tcccgtgaac    5520

tttacccggt ggtgcatatc ggggatgaaa gctggcgcat gatgaccacc gatatggcca    5580

gtgtgccggt ctccgttatc ggggaagaag tggctgatct cagccaccgc gaaaatgaca    5640

tcaaaaacgc cattaacctg atgttctggg gaatataaat gtcaggctcc gttatacaca    5700

gccagtctgc aggtcgacca tagtgactgg atatgttgtg ttttacagta ttatgtagtc    5760

tgttttttat gcaaaatcta atttaatata ttgatattta tatcatttta cgtttctcgt    5820

tcagctttct tgtacaaagt ggtgataa                                       5848
```

<210> 142

<211> 6422

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST14

<220>

<221> gene

<222> (61)..(185)

<223> attR1


<220>

<221> gene

<222> (435)..(1094)

<223> CmR


<220>

<221> gene

<222> (1214)..(1298)

<223> inactivated ccdA


<220>

<221> gene

<222> (1436)..(1741)

<223> ccdB


<220>

<221> gene

<222> (1782)..(1906)

<223> attR2


<220>

<221> gene

<222> (2632)..(3489)

<223> ampR


<400> 142
cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc cctctagatc    60

acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta   120

aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca   180

ctatggcggc cgctaagttg gcagcatcac ccgacgcact ttgcgccgaa taaatacctg   240

tgacggaaga tcacttcgca gaataaataa atcctggtgt ccctgttgat accgggaagc   300

cctgggccaa cttttggcga aaatgagacg ttgatcggca cgtaagaggt tccaactttc   360

accataatga aataagatca ctaccgggcg tattttttga gttatcgaga ttttcaggag   420

ctaaggaagc taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat   480

ggcatcgtaa agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga   540

ccgttcagct ggatattacg gcctttttaa agaccgtaaa gaaaaataag cacaagtttt   600

atccggcctt tattcacatt cttgcccgcc tgatgaatgc tcatccggaa ttccgtatgg   660

caatgaaaga cggtgagctg gtgatatggg atagtgttca cccttgttac accgttttcc   720

atgagcaaac tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt   780

ttctacacat atattcgcaa gatgtggcgt gttacggtga aaacctggcc tatttcccta   840

```
aagggtttat tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt    900

ttgatttaaa cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaat    960

attatacgca aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct   1020

gtgatggctt ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc   1080

agggcggggc gtaaacgcgt ggatccggct tactaaaagc cagataacag tatgcgtatt   1140

tgcgcgctga tttttgcggt ataagaatat atactgatat gtatacccga agtatgtcaa   1200

aaagaggtgt gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt   1260

gctcaaggca tatatgatgt caatatctcc ggtctggtaa gcacaaccat gcagaatgaa   1320

gcccgtcgtc tgcgtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc   1380

gcccggttta ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca   1440

gtttaaggtt tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag   1500

tgatattatt gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct   1560

gtcagataaa gtctcccgtg aactttaccc ggtggtgcat atcggggatg aaagctggcg   1620

catgatgacc accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga   1680

tctcagccac cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata   1740

aatgtcaggc tcccttatac acagccagtc tgcaggtcga ccatagtgac tggatatgtt   1800

gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat atattgatat   1860

ttatatcatt ttacgtttct cgttcagctt cttgtacaa agtggtgatg atccggctgc   1920

taacaaagcc cgaaaggaag ctgagttggc tgctgccacc gctgagcaat aactagcata   1980

accccttggg gcctctaaac gggtcttgag gggttttttg ctgaaaggag gaactatatc   2040

cggatatcca caggacgggt gtggtcgcca tgatcgcgta gtcgatagtg ctccaagta   2100

gcgaagcgag caggactggg cggcggccaa agcggtcgga cagtgctccg agaacgggtg   2160

cgcatagaaa ttgcatcaac gcatatagcg ctagcagcac gccatagtga ctggcgatgc   2220

tgtcggaatg gacgatatcc cgcaagaggc ccggcagtac cggcataacc aagcctatgc   2280

ctacagcatc cagggtgacg gtgccgagga tgacgatgag cgcattgtta gatttcatac   2340

acggtgcctg actgcgttag caatttaact gtgataaact accgcattaa agcttatcga   2400

tgataagctg tcaaacatga gaattcttga agacgaaagg gcctcgtgat acgcctattt   2460

ttataggtta atgtcatgat aataatggtt tcttagacgt caggtggcac ttttcgggga   2520

aatgtgcgcg gaacccctat ttgtttattt ttctaaatac attcaaatat gtatccgctc   2580

atgagacaat aaccctgata aatgcttcaa taatattgaa aaaggaagag tatgagtatt   2640

caacatttcc gtgtcgccct tattcccttt tttgcggcat tttgccttcc tgttttttgct   2700
```

```
cacccagaaa cgctggtgaa agtaaaagat gctgaagatc agttgggtgc acgagtgggt    2760

tacatcgaac tggatctcaa cagcggtaag atccttgaga gttttcgccc cgaagaacgt    2820

tttccaatga tgagcacttt taaagttctg ctatgtggcg cggtattatc ccgtgttgac    2880

gccgggcaag agcaactcgg tcgccgcata cactattctc agaatgactt ggttgagtac    2940

tcaccagtca cagaaaagca tcttacggat ggcatgacag taagagaatt atgcagtgct    3000

gccataacca tgagtgataa cactgcggcc aacttacttc tgacaacgat cggaggaccg    3060

aaggagctaa ccgctttttt gcacaacatg ggggatcatg taactcgcct tgatcgttgg    3120

gaaccggagc tgaatgaagc cataccaaac gacgagcgtg acaccacgat gcctgcagca    3180

atggcaacaa cgttgcgcaa actattaact ggcgaactac ttactctagc ttcccggcaa    3240

caattaatag actggatgga ggcggataaa gttgcaggac cacttctgcg ctcggccctt    3300

ccggctggct ggtttattgc tgataaatct ggagccggtg agcgtgggtc tcgcggtatc    3360

attgcagcac tggggccaga tggtaagccc tcccgtatcg tagttatcta cacgacgggg    3420

agtcaggcaa ctatggatga acgaaataga cagatcgctg agataggtgc ctcactgatt    3480

aagcattggt aactgtcaga ccaagtttac tcatatatac tttagattga tttaaaactt    3540

catttttaat ttaaaaggat ctaggtgaag atcctttttg ataatctcat gaccaaaatc    3600

ccttaacgtg agttttcgtt ccactgagcg tcagaccccg tagaaaagat caaaggatct    3660

tcttgagatc ctttttttct gcgcgtaatc tgctgcttgc aaacaaaaaa accaccgcta    3720

ccagcggtgg tttgtttgcc ggatcaagag ctaccaactc tttttccgaa ggtaactggc    3780

ttcagcagag cgcagatacc aaatactgtc cttctagtgt agccgtagtt aggccaccac    3840

ttcaagaact ctgtagcacc gcctacatac ctcgctctgc taatcctgtt accagtggct    3900

gctgccagtg gcgataagtc gtgtcttacc gggttggact caagacgata gttaccggat    3960

aaggcgcagc ggtcgggctg aacggggggt tcgtgcacac agcccagctt ggagcgaacg    4020

acctacaccg aactgagata cctacagcgt gagctatgag aaagcgccac gcttcccgaa    4080

gggagaaagg cggacaggta tccggtaagc ggcagggtcg aacaggaga gcgcacgagg    4140

gagcttccag ggggaaacgc ctggtatctt tatagtcctg tcgggtttcg ccacctctga    4200

cttgagcgtc gatttttgtg atgctcgtca gggggggcgga gcctatggaa aaacgccagc    4260

aacgcggcct ttttacggtt cctggccttt tgctggcctt ttgctcacat gttctttcct    4320

gcgttatccc ctgattctgt ggataaccgt attaccgcct ttgagtgagc tgataccgct    4380

cgccgcagcc gaacgaccga gcgcagcgag tcagtgagcg aggaagcgga agagcgcctg    4440

atgcggtatt ttctccttac gcatctgtgc ggtatttcac accgcatata tggtgcactc    4500

tcagtacaat ctgctctgat gccgcatagt taagccagta tacactccgc tatcgctacg    4560
```

```
tgactgggtc atggctgcgc cccgacaccc gccaacaccc gctgacgcgc cctgacgggc   4620

ttgtctgctc ccggcatccg cttacagaca agctgtgacc gtctccggga gctgcatgtg   4680

tcagaggttt tcaccgtcat caccgaaacg cgcgaggcag ctgcggtaaa gctcatcagc   4740

gtggtcgtga agcgattcac agatgtctgc ctgttcatcc gcgtccagct cgttgagttt   4800

ctccagaagc gttaatgtct ggcttctgat aaagcgggcc atgttaaggg cggttttttc   4860

ctgtttggtc actgatgcct ccgtgtaagg gggatttctg ttcatggggg taatgatacc   4920

gatgaaacga gagaggatgc tcacgatacg ggttactgat gatgaacatg cccggttact   4980

ggaacgttgt gagggtaaac aactggcggt atggatgcgg cgggaccaga gaaaaatcac   5040

tcagggtcaa tgccagcgct tcgttaatac agatgtaggt gttccacagg gtagccagca   5100

gcatcctgcg atgcagatcc ggaacataat ggtgcagggc gctgacttcc gcgtttccag   5160

actttacgaa acacggaaac cgaagaccat tcatgttgtt gctcaggtcg cagacgtttt   5220

gcagcagcag tcgcttcacg ttcgctcgcg tatcggtgat tcattctgct aaccagtaag   5280

gcaaccccgc cagcctagcc gggtcctcaa cgacaggagc acgatcatgc gcacccgtgg   5340

ccaggaccca acgctgcccg agatgcgccg cgtgcggctg ctggagatgg cggacgcgat   5400

ggatatgttc tgccaagggt tggtttgcgc attcacagtt ctccgcaaga attgattggc   5460

tccaattctt ggagtggtga atccgttagc gaggtgccgc cggcttccat tcaggtcgag   5520

gtggcccggc tccatgcacc gcgacgcaac gcggggaggc agacaaggta tagggcggcg   5580

cctacaatcc atgccaaccc gttccatgtg ctcgccgagg cggcataaat cgccgtgacg   5640

atcagcggtc cagtgatcga agttaggctg gtaagagccg cgagcgatcc ttgaagctgt   5700

ccctgatggt cgtcatctac ctgcctggac agcatggcct gcaacgcggg catcccgatg   5760

ccgccggaag cgagaagaat cataatgggg aaggccatcc agcctcgcgt cgcgaacgcc   5820

agcaagacgt agcccagcgc gtcggccgcc atgccggcga taatggcctg cttctcgccg   5880

aaacgtttgg tggcgggacc agtgacgaag gcttgagcga gggcgtgcaa gattccgaat   5940

accgcaagcg acaggccgat catcgtcgcg ctccagcgaa agcggtcctc gccgaaaatg   6000

acccagagcg ctgccggcac ctgtcctacg agttgcatga taaagaagac agtcataagt   6060

gcggcgacga tagtcatgcc ccgcgcccac cggaaggagc tgactgggtt gaaggctctc   6120

aagggcatcg gtcgatcgac gctctccctt atgcgactcc tgcattagga agcagcccag   6180

tagtaggttg aggccgttga gcaccgccgc cgcaaggaat ggtgcatgca aggagatggc   6240

gcccaacagt cccccggcca cggggcctgc caccataccc acgccgaaac aagcgctcat   6300

gagcccgaag tggcgagccc gatcttcccc atcggtgatg tcggcgatat aggcgccagc   6360

aaccgcacct gtggcgccgg tgatgccggc cacgatgcgt ccggcgtaga ggatcgagat   6420
```

ct                                                                      6422

<210>  143

<211>  7013

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST15

<220>

<221>  gene

<222>  (108)..(776)

<223>  GST


<220>

<221>  gene

<222>  (792)..(916)

<223>  attR1


<220>

<221>  gene

<222>  (1025)..(1537)

<223>  CmR


<220>

<221>  gene

<222>  (1804)..(1888)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (2026)..(2331)

<223> ccdB


<220>

<221> gene

<222> (2372)..(2496)

<223> attR2


<220>

<221> gene

<222> (3233)..(4093)

<223> ampR


<400> 143

```
atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc      60

cctctagaaa taattttgtt aactttaag aaggagatat acatatgtcc cctatactag      120

gttattggaa aattaagggc cttgtgcaac ccactcgact tcttttggaa tatcttgaag      180

aaaaatatga agagcatttg tatgagcgcg atgaaggtga taaatggcga aacaaaaagt      240

ttgaattggg tttggagttt cccaatcttc cttattatat tgatggtgat gttaaattaa      300

cacagtctat ggccatcata cgttatatag ctgacaagca acacatgttg ggtggttgtc      360

caaaagagcg tgcagagatt tcaatgcttg aaggagcggt tttggatatt agatacggtg      420

tttcgagaat tgcatatagt aaagactttg aaactctcaa agttgatttt cttagcaagc      480

tacctgaaat gctgaaaatg ttcgaagatc gtttatgtca taaaacatat ttaaatggtg      540

atcatgtaac ccatcctgac ttcatgttgt atgacgctct tgatgttgtt ttatacatgg      600

acccaatgtg cctggatgcg ttcccaaaat tagtttgttt taaaaaacgt attgaagcta      660

tcccacaaat tgataagtac ttgaaatcca gcaagtatat agcatggcct ttgcagggct      720

ggcaagccac gtttggtggt ggcgaccatc ctccaaaatc ggatctggtt ccgcgtccat      780

ggtcgaatca aacaagtttg tacaaaaaag ctgaacgaga acgtaaaat gatataaata      840

tcaatatatt aaattagatt ttgcataaaa acagactac ataatactgt aaaacacaac      900

atatccagtc actatggcgg ccgcattagg caccccaggc tttcactttt atgcttccgg      960

ctcgtataat gtgtggattt tgagttagga tccgtcgaga ttttcaggag ctaaggaagc      1020

taaaatggag aaaaaaatca ctggatatac caccgttgat atatcccaat ggcatcgtaa      1080

agaacatttt gaggcatttc agtcagttgc tcaatgtacc tataaccaga ccgttcagct      1140
```

```
ggatattacg gcctttttaa agaccgtaaa gaaaaataag cacaagtttt atccggcctt    1200

tattcacatt cttgcccgcc tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga    1260

cggtgagctg gtgatatggg atagtgttca cccttgttac accgttttcc atgagcaaac    1320

tgaaacgttt tcatcgctct ggagtgaata ccacgacgat ttccggcagt ttctacacat    1380

atattcgcaa gatgtggcgt gttacggtga aaacctggcc tatttcccta aagggtttat    1440

tgagaatatg tttttcgtct cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa    1500

cgtggccaat atggacaact tcttcgcccc cgttttcacc atgggcaaat attatacgca    1560

aggcgacaag gtgctgatgc cgctggcgat tcaggttcat catgccgtct gtgatggctt    1620

ccatgtcggc agaatgctta atgaattaca acagtactgc gatgagtggc agggcggggc    1680

gtaatctaga ggatccggct tactaaaagc cagataacag tatgcgtatt tgcgcgctga    1740

tttttgcggt ataagaatat atactgatat gtatacccga agtatgtcaa aaagaggtgt    1800

gctatgaagc agcgtattac agtgacagtt gacagcgaca gctatcagtt gctcaaggca    1860

tatatgatgt caatatctcc ggtctggtaa gcacaaccat gcagaatgaa gcccgtcgtc    1920

tgcgtgccga acgctggaaa gcggaaaatc aggaagggat ggctgaggtc gcccggttta    1980

ttgaaatgaa cggctctttt gctgacgaga acagggactg gtgaaatgca gtttaaggtt    2040

tacacctata aaagagagag ccgttatcgt ctgtttgtgg atgtacagag tgatattatt    2100

gacacgcccg ggcgacggat ggtgatcccc ctggccagtg cacgtctgct gtcagataaa    2160

gtctcccgtg aactttaccc ggtggtgcat atcggggatg aaagctggcg catgatgacc    2220

accgatatgg ccagtgtgcc ggtctccgtt atcggggaag aagtggctga tctcagccac    2280

cgcgaaaatg acatcaaaaa cgccattaac ctgatgttct ggggaatata aatgtcaggc    2340

tcccttatac acagccagtc tgcaggtcga ccatagtgac tggatatgtt gtgttttaca    2400

gtattatgta gtctgttttt tatgcaaaat ctaatttaat atattgatat ttatatcatt    2460

ttacgtttct cgttcagctt tcttgtacaa agtggtttga ttcgacccgg gatccggctg    2520

ctaacaaagc ccgaaggaa gctgagttgg ctgctgccac cgctgagcaa taactagcat    2580

aacccttgg ggcctctaaa cgggtcttga ggggtttttt gctgaaagga ggaactatat    2640

ccggatatcc acaggacggg tgtggtcgcc atgatcgcgt agtcgatagt ggctccaagt    2700

agcgaagcga gcaggactgg gcggcggcca aagcggtcgg acagtgctcc gagaacgggt    2760

gcgcatagaa attgcatcaa cgcatatagc gctagcagca cgccatagtg actggcgatg    2820

ctgtcggaat ggacgatatc ccgcaagagg cccggcagta ccggcataac caagcctatg    2880

cctacagcat ccagggtgac ggtgccgagg atgacgatga gcgcattgtt agatttcata    2940

cacggtgcct gactgcgtta gcaatttaac tgtgataaac taccgcatta aagcttatcg    3000
```

```
atgataagct gtcaaacatg agaattcttg aagacgaaag ggcctcgtga tacgcctatt    3060

tttataggtt aatgtcatga taataatggt ttcttagacg tcaggtggca cttttcgggg    3120

aaatgtgcgc ggaacccccta tttgtttatt tttctaaata cattcaaata tgtatccgct    3180

catgagacaa taaccctgat aaatgcttca ataatattga aaaggaaga gtatgagtat     3240

tcaacatttc cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgttttttgc   3300

tcacccagaa acgctggtga aagtaaaaga tgctgaagat cagttgggtg cacgagtggg    3360

ttacatcgaa ctggatctca acagcggtaa gatccttgag agttttcgcc ccgaagaacg    3420

ttttccaatg atgagcactt ttaaagttct gctatgtggc gcggtattat cccgtgttga    3480

cgccgggcaa gagcaactcg gtcgccgcat acactattct cagaatgact tggttgagta    3540

ctcaccagtc acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc    3600

tgccataacc atgagtgata acactgcggc caacttactt ctgacaacga tcggaggacc    3660

gaaggagcta accgcttttt tgcacaacat ggggggatcat gtaactcgcc ttgatcgttg    3720

ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgcagc    3780

aatggcaaca acgttgcgca aactattaac tggcgaacta cttactctag cttcccggca    3840

acaattaata gactggatgg aggcggataa agttgcagga ccacttctgc gctcggccct    3900

tccggctggc tggtttattg ctgataaatc tggagccggt gagcgtgggt ctcgcggtat    3960

cattgcagca ctggggccag atggtaagcc ctcccgtatc gtagttatct acacgacggg    4020

gagtcaggca actatggatg aacgaaatag acagatcgct gagataggtg cctcactgat    4080

taagcattgg taactgtcag accaagttta ctcatatata ctttagattg atttaaaact    4140

tcatttttaa tttaaaagga tctaggtgaa gatccttttt gataatctca tgaccaaaat    4200

cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc    4260

ttcttgagat cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct    4320

accagcggtg gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg    4380

cttcagcaga gcgcagatac caaatactgt ccttctagtg tagccgtagt taggccacca    4440

cttcaagaac tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc    4500

tgctgccagt ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga    4560

taaggcgcag cggtcgggct gaacggggggg ttcgtgcaca gcccagct tggagcgaac    4620

gacctacacc gaactgagat acctacagcg tgagctatga aaagcgcca cgcttcccga    4680

agggagaaag gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag    4740

ggagcttcca gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg    4800

acttgagcgt cgatttttgt gatgctcgtc aggggggcgg agcctatgga aaaacgccag    4860
```

```
caacgcggcc tttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc    4920

tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagtgag ctgataccgc    4980

tcgccgcagc cgaacgaccg agcgcagcga gtcagtgagc gaggaagcgg aagagcgcct    5040

gatgcggtat tttctcctta cgcatctgtg cggtatttca caccgcatat atggtgcact    5100

ctcagtacaa tctgctctga tgccgcatag ttaagccagt atacactccg ctatcgctac    5160

gtgactgggt catggctgcg ccccgacacc cgccaacacc cgctgacgcg ccctgacggg    5220

cttgtctgct cccggcatcc gcttacagac aagctgtgac cgtctccggg agctgcatgt    5280

gtcagaggtt ttcaccgtca tcaccgaaac gcgcgaggca gctgcggtaa agctcatcag    5340

cgtggtcgtg aagcgattca cagatgtctg cctgttcatc cgcgtccagc tcgttgagtt    5400

tctccagaag cgttaatgtc tggcttctga taaagcgggc catgttaagg gcggtttttt    5460

cctgtttggt cactgatgcc tccgtgtaag ggggatttct gttcatgggg gtaatgatac    5520

cgatgaaacg agagaggatg ctcacgatac gggttactga tgatgaacat gcccggttac    5580

tggaacgttg tgagggtaaa caactggcgg tatggatgcg gcgggaccag agaaaaatca    5640

ctcagggtca atgccagcgc ttcgttaata cagatgtagg tgttccacag ggtagccagc    5700

agcatcctgc gatgcagatc cggaacataa tggtgcaggg cgctgacttc cgcgtttcca    5760

gactttacga aacacggaaa ccgaagacca ttcatgttgt tgctcaggtc gcagacgttt    5820

tgcagcagca gtcgcttcac gttcgctcgc gtatcggtga ttcattctgc taaccagtaa    5880

ggcaaccccg ccagcctagc cgggtcctca acgacaggag cacgatcatg cgcacccgtg    5940

gccaggaccc aacgctgccc gagatgcgcc gcgtgcggct gctggagatg gcggacgcga    6000

tggatatgtt ctgccaaggg ttggtttgcg cattcacagt tctccgcaag aattgattgg    6060

ctccaattct tggagtggtg aatccgttag cgaggtgccg ccggcttcca ttcaggtcga    6120

ggtggcccgg ctccatgcac cgcgacgcaa cgcggggagg cagacaaggt atagggcggc    6180

gcctacaatc catgccaacc cgttccatgt gctcgccgag gcggcataaa tcgccgtgac    6240

gatcagcggt ccagtgatcg aagttaggct ggtaagagcc gcgagcgatc cttgaagctg    6300

tccctgatgg tcgtcatcta cctgcctgga cagcatggcc tgcaacgcgg gcatcccgat    6360

gccgccggaa gcgagaagaa tcataatggg gaaggccatc cagcctcgcg tcgcgaacgc    6420

cagcaagacg tagcccagcg cgtcggccgc catgccggcg ataatggcct gcttctcgcc    6480

gaaacgtttg gtggcgggac cagtgacgaa ggcttgagcg agggcgtgca agattccgaa    6540

taccgcaagc gacaggccga tcatcgtcgc gctccagcga aagcggtcct cgccgaaaat    6600

gacccagagc gctgccggca cctgtcctac gagttgcatg ataaagaaga cagtcataag    6660

tgcggcgacg atagtcatgc cccgcgccca ccggaaggag ctgactgggt tgaaggctct    6720
```

```
caagggcatc ggtcgatcga cgctctccct tatgcgactc ctgcattagg aagcagccca    6780

gtagtaggtt gaggccgttg agcaccgccg ccgcaaggaa tggtgcatgc aaggagatgg    6840

cgcccaacag tcccccggcc acggggcctg ccaccatacc cacgccgaaa caagcgctca    6900

tgagcccgaa gtggcgagcc cgatcttccc catcggtgat gtcggcgata taggcgccag    6960

caaccgcacc tgtggcgccg gtgatgccgg ccacgatgcg tccggcgtag agg           7013
```

<210> 144

<211> 6675

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST16

<220>

<221> gene

<222> (104)..(457)

<223> trxA


<220>

<221> gene

<222> (461)..(585)

<223> attR1


<220>

<221> gene

<222> (694)..(1353)

<223> CmR


<220>

<221> gene

<222> (1473)..(1557)

<223> inactivated ccdA

<220>

<221>   gene

<222>   (1695)..(2000)

<223>   ccdB


<220>

<221>   gene

<222>   (2041)..(2165)

<223>   attR2


<400>   144

```
agatctcgat cccgcgaaat taatacgact cactataggg agaccacaac ggtttccctc      60

tagaaataat tttgtttaac tttaagaagg agatatacat atgagcgata aaattattca     120

cctgactgac gacagttttg acacggatgt actcaaagcg gacggggcga tcctcgtcga     180

tttctgggca gagtggtgcg gtccgtgcaa aatgatcgcc ccgattctgg atgaaatcgc     240

tgacgaatat caggggcaaac tgaccgttgc aaaactgaac atcgatcaaa accctggcac     300

tgcgccgaaa tatggcatcc gtggtatccc gactctgctg ctgttcaaaa acggtgaagt     360

ggcggcaacc aaagtgggtg cactgtctaa aggtcagttg aaagagttcc tcgacgctaa     420

cctggccggt tctggttctg gtgatgacga tgacaagatc acaagtttgt acaaaaaagc     480

tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt gcataaaaa     540

acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc cgcattaggc     600

accccaggct ttacacttta tgcttccggc tcgtataatg tgtggatttt gagttaggat     660

ccggcgagat tttcaggagc taaggaagct aaaatggaga aaaaaatcac tggatatacc     720

accgttgata tatcccaatg gcatcgtaaa gaacattttg aggcatttca gtcagttgct     780

caatgtacct ataaccagac cgttcagctg gatattacgg cctttttaaa gaccgtaaag     840

aaaaataagc acaagtttta tccggccttt attcacattc ttgcccgcct gatgaatgct     900

catccggaat tccgtatggc aatgaaagac ggtgagctgg tgatatggga tagtgttcac     960

ccttgttaca ccgttttcca tgagcaaact gaaacgtttt catcgctctg gagtgaatac    1020

cacgacgatt tccggcagtt tctacacata tattcgcaag atgtggcgtg ttacggtgaa    1080

aacctggcct atttccctaa agggtttatt gagaatatgt ttttcgtctc agccaatccc    1140

tgggtgagtt tcaccagttt tgatttaaac gtggccaata tggacaactt cttcgccccc    1200
```

```
gttttcacca tgggcaaata ttatacgcaa ggcgacaagg tgctgatgcc gctggcgatt    1260

caggttcatc atgccgtctg tgatggcttc catgtcggca gaatgcttaa tgaattacaa    1320

cagtactgcg atgagtggca gggcggggcg taaacgcgtg gatccggctt actaaaagcc    1380

agataacagt atgcgtattt gcgcgctgat ttttgcggta taagaatata tactgatatg    1440

tatacccgaa gtatgtcaaa aagaggtgtg ctatgaagca gcgtattaca gtgacagttg    1500

acagcgacag ctatcagttg ctcaaggcat atatgatgtc aatatctccg gtctggtaag    1560

cacaaccatg cagaatgaag cccgtcgtct gcgtgccgaa cgctggaaag cggaaaatca    1620

ggaagggatg gctgaggtcg cccggtttat tgaaatgaac ggctcttttg ctgacgagaa    1680

cagggactgg tgaaatgcag tttaaggttt acacctataa aagagagagc cgttatcgtc    1740

tgtttgtgga tgtacagagt gatattattg acacgcccgg cgacggatg gtgatccccc    1800

tggccagtgc acgtctgctg tcagataaag tctcccgtga actttacccg gtggtgcata    1860

tcgggggatga aagctggcgc atgatgacca ccgatatggc cagtgtgccg gtctccgtta    1920

tcggggaaga agtggctgat ctcagccacc gcgaaaatga catcaaaaac gccattaacc    1980

tgatgttctg gggaatataa atgtcaggct cccttataca cagccagtct gcaggtcgac    2040

catagtgact ggatatgttg tgttttacag tattatgtag tctgtttttt atgcaaaatc    2100

taatttaata tattgatatt tatatcattt tacgtttctc gttcagcttt cttgtacaaa    2160

gtggtgatga tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg    2220

ctgagcaata actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc    2280

tgaaaggagg aactatatcc ggatatccac aggacgggtg tggtcgccat gatcgcgtag    2340

tcgatagtgg ctccaagtag cgaagcgagc aggactgggc ggcggccaaa gcggtcggac    2400

agtgctccga gaacgggtgc gcatagaaat tgcatcaacg catatagcgc tagcagcacg    2460

ccatagtgac tggcgatgct gtcggaatgg acgatatccc gcaagaggcc cggcagtacc    2520

ggcataacca agcctatgcc tacagcatcc agggtgacgg tgccgaggat gacgatgagc    2580

gcattgttag atttcataca cggtgcctga ctgcgttagc aatttaactg tgataaacta    2640

ccgcattaaa gcttatcgat gataagctgt caaacatgag aattcttgaa gacgaaaggg    2700

cctcgtgata cgcctatttt tataggttaa tgtcatgata ataatggttt cttagacgtc    2760

aggtggcact tttcggggaa atgtgcgcgg aacccctatt tgtttatttt tctaaataca    2820

ttcaaatatg tatccgctca tgagacaata accctgataa atgcttcaat aatattgaaa    2880

aaggaagagt atgagtattc aacatttccg tgtcgccctt attccctttt ttgcggcatt    2940

ttgccttcct gtttttgctc acccagaaac gctggtgaaa gtaaaagatg ctgaagatca    3000

gttgggtgca cgagtgggtt acatcgaact ggatctcaac agcggtaaga tccttgagag    3060
```

```
ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagttctgc tatgtggcgc    3120

ggtattatcc cgtgttgacg ccgggcaaga gcaactcggt cgccgcatac actattctca    3180

gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg gcatgacagt    3240

aagagaatta tgcagtgctg ccataaccat gagtgataac actgcggcca acttacttct    3300

gacaacgatc ggaggaccga aggagctaac cgcttttttg cacaacatgg gggatcatgt    3360

aactcgcctt gatcgttggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga    3420

caccacgatg cctgcagcaa tggcaacaac gttgcgcaaa ctattaactg gcgaactact    3480

tactctagct tcccggcaac aattaataga ctggatggag gcggataaag ttgcaggacc    3540

acttctgcgc tcggcccttc cggctggctg gtttattgct gataaatctg gagccggtga    3600

gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct cccgtatcgt    3660

agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac agatcgctga    3720

gataggtgcc tcactgatta agcattggta actgtcagac caagtttact catatatact    3780

ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga tcctttttga    3840

taatctcatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagacccctgt    3900

agaaaagatc aaaggatctt cttgagatcc tttttttctg cgcgtaatct gctgcttgca    3960

aacaaaaaaa ccaccgctac cagcggtggt ttgtttgccg gatcaagagc taccaactct    4020

ttttccgaag gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgta    4080

gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct    4140

aatcctgtta ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg ggttggactc    4200

aagacgatag ttaccggata aggcgcagcg gtcgggctga cggggggtt cgtgcacaca    4260

gcccagcttg gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga    4320

aagcgccacg cttcccgaag ggagaaaggc ggacaggtat ccggtaagcg cagggtcgg    4380

aacaggagag cgcacgaggg agcttccagg gggaaacgcc tggtatcttt atagtcctgt    4440

cgggtttcgc cacctctgac ttgagcgtcg attttgtga tgctcgtcag ggggggcggag   4500

cctatggaaa aacgccagca acgcggcctt tttacggttc ctggcctttt gctggccttt    4560

tgctcacatg ttctttcctg cgttatcccc tgattctgtg ataaccgta ttaccgcctt     4620

tgagtgagct gataccgctc gccgcagccg aacgaccgag cgcagcgagt cagtgagcga    4680

ggaagcggaa gagcgcctga tgcggtattt tctccttacg catctgtgcg gtatttcaca    4740

ccgcatatat ggtgcactct cagtacaatc tgctctgatg ccgcatagtt aagccagtat    4800

acactccgct atcgctacgt gactgggtca tggctgcgcc ccgacacccg ccaacacccg    4860

ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa gctgtgaccg    4920
```

```
tctccgggag ctgcatgtgt cagaggtttt caccgtcatc accgaaacgc gcgaggcagc    4980

tgcggtaaag ctcatcagcg tggtcgtgaa gcgattcaca gatgtctgcc tgttcatccg    5040

cgtccagctc gttgagtttc tccagaagcg ttaatgtctg gcttctgata aagcgggcca    5100

tgttaagggc ggttttttcc tgtttggtca ctgatgcctc cgtgtaaggg ggatttctgt    5160

tcatgggggt aatgataccg atgaaacgag agaggatgct cacgatacgg gttactgatg    5220

atgaacatgc ccggttactg gaacgttgtg agggtaaaca actggcggta tggatgcggc    5280

gggaccagag aaaaatcact cagggtcaat gccagcgctt cgttaataca gatgtaggtg    5340

ttccacaggg tagccagcag catcctgcga tgcagatccg gaacataatg gtgcagggcg    5400

ctgacttccg cgtttccaga ctttacgaaa cacggaaacc gaagaccatt catgttgttg    5460

ctcaggtcgc agacgttttg cagcagcagt cgcttcacgt tcgctcgcgt atcggtgatt    5520

cattctgcta accagtaagg caaccccgcc agcctagccg ggtcctcaac gacaggagca    5580

cgatcatgcg cacccgtggc caggacccaa cgctgcccga gatgcgccgc gtgcggctgc    5640

tggagatggc ggacgcgatg gatatgttct gccaagggtt ggtttgcgca ttcacagttc    5700

tccgcaagaa ttgattggct ccaattcttg gagtggtgaa tccgttagcg aggtgccgcc    5760

ggcttccatt caggtcgagg tggcccggct ccatgcaccg cgacgcaacg cggggaggca    5820

gacaaggtat agggcggcgc ctacaatcca tgccaacccg ttccatgtgc tcgccgaggc    5880

ggcataaatc gccgtgacga tcagcggtcc agtgatcgaa gttaggctgg taagagccgc    5940

gagcgatcct tgaagctgtc cctgatggtc gtcatctacc tgcctggaca gcatggcctg    6000

caacgcgggc atcccgatgc cgccggaagc gagaagaatc ataatgggga aggccatcca    6060

gcctcgcgtc gcgaacgcca gcaagacgta gcccagcgcg tcggccgcca tgccggcgat    6120

aatggcctgc ttctcgccga aacgtttggt ggcgggacca gtgacgaagg cttgagcgag    6180

ggcgtgcaag attccgaata ccgcaagcga caggccgatc atcgtcgcgc tccagcgaaa    6240

gcggtcctcg ccgaaaatga cccagagcgc tgccggcacc tgtcctacga gttgcatgat    6300

aaagaagaca gtcataagtg cggcgacgat agtcatgccc cgcgcccacc ggaaggagct    6360

gactgggttg aaggctctca agggcatcgg tcgatcgacg ctctccctta tgcgactcct    6420

gcattaggaa gcagcccagt agtaggttga ggccgttgag caccgccgcc gcaaggaatg    6480

gtgcatgcaa ggagatggcg cccaacagtc ccccggccac ggggcctgcc accatcccca    6540

cgccgaaaca agcgctcatg agcccgaagt ggcgagcccg atcttcccca tcggtgatgt    6600

cggcgatata ggcgccagca accgcacctg tggcgccggt gatgccggcc acgatgcgtc    6660

cggcgtagag gatcg                                                      6675
```

<210> 145

<211> 6354

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST17

<220>

<221> gene

<222> (134)..(258)

<223> attR1


<220>

<221> gene

<222> (367)..(1026)

<223> CmR


<220>

<221> gene

<222> (1146)..(1230)

<223> inactivated ccdA


<220>

<221> gene

<222> (1368)..(1673)

<223> ccdB


<220>

<221> gene

<222> (1714)..(1838)

<223> attR2

<220>

<221>   gene

<222>   (2564)..(3421)

<223>   ampR


<400>   145

```
cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc cctctagaaa      60

taattttgtt aactttaag aaggagatat acatatgtcg tactaccatc accatcacca      120

tcacctcgaa tcaacaagtt tgtacaaaaa agctgaacga gaaacgtaaa atgatataaa      180

tatcaatata ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca      240

acatatccag tcactatggc ggccgcatta ggcaccccag gctttacact ttatgcttcc      300

ggctcgtata atgtgtggat tttgagttag gatccgtcga gattttcagg agctaaggaa      360

gctaaaatgg agaaaaaaat cactggatat accaccgttg atatatccca atggcatcgt      420

aaagaacatt ttgaggcatt tcagtcagtt gctcaatgta cctataacca gaccgttcag      480

ctggatatta cggccttttt aaagaccgta aagaaaaata agcacaagtt ttatccggcc      540

tttattcaca ttcttgcccg cctgatgaat gctcatccgg aattccgtat ggcaatgaaa      600

gacggtgagc tggtgatatg ggatagtgtt caccettgtt acaccgtttt ccatgagcaa      660

actgaaacgt tttcatcgct ctggagtgaa taccacgacg atttccggca gtttctacac      720

atatattcgc aagatgtggc gtgttacggt gaaaacctgg cctatttccc taaagggttt      780

attgagaata tgtttttcgt ctcagccaat ccctgggtga gtttcaccag ttttgattta      840

aacgtggcca atatggacaa cttcttcgcc cccgtttttca ccatgggcaa atattatacg      900

caaggcgaca aggtgctgat gccgctggcg attcaggttc atcatgccgt ctgtgatggc      960

ttccatgtcg gcagaatgct taatgaatta caacagtact gcgatgagtg cagggcggg      1020

gcgtaaagat ctggatccgg cttactaaaa gccagataac agtatgcgta tttgcgcgct      1080

gattttgcg gtataagaat atatactgat atgtatacc gaagtatgtc aaaaagaggt      1140

gtgctatgaa gcagcgtatt acagtgacag ttgacagcga cagctatcag ttgctcaagg      1200

catatatgat gtcaatatct ccggtctggt aagcacaacc atgcagaatg aagcccgtcg      1260

tctgcgtgcc gaacgctgga aagcggaaaa tcaggaaggg atggctgagg tcgcccggtt      1320

tattgaaatg aacggctctt ttgctgacga gaacagggac tggtgaaatg cagtttaagg      1380

tttacaccta taaaagagag agccgttatc gtctgtttgt ggatgtacag agtgatatta      1440

ttgacacgcc cgggcgacgg atggtgatcc ccctggccag tgcacgtctg ctgtcagata      1500

aagtctcccg tgaactttac ccggtggtgc atatcgggga tgaaagctgg cgcatgatga      1560
```

```
ccaccgatat ggccagtgtg ccggtctccg ttatcgggga agaagtggct gatctcagcc    1620

accgcgaaaa tgacatcaaa aacgccatta acctgatgtt ctggggaata taaatgtcag    1680

gctcccttat acacagccag tctgcaggtc gaccatagtg actggatatg ttgtgtttta    1740

cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat atttatatca    1800

ttttacgttt ctcgttcagc tttcttgtac aaagtggttg attcgaggct gctaacaaag    1860

cccgaaagga agctgagttg gctgctgcca ccgctgagca ataactagca taacccecttg   1920

gggcctctaa acgggtcttg aggggttttt tgctgaaagg aggaactata tccggatatc    1980

cacaggacgg gtgtggtcgc catgatcgcg tagtcgatag tggctccaag tagcgaagcg    2040

agcaggactg ggcggcggcc aaagcggtcg gacagtgctc cgagaacggg tgcgcataga    2100

aattgcatca acgcatatag cgctagcagc acgccatagt gactggcgat gctgtcggaa    2160

tggacgatat cccgcaagag gcccggcagt accggcataa ccaagcctat gcctacagca    2220

tccagggtga cggtgccgag gatgacgatg agcgcattgt tagatttcat acacggtgcc    2280

tgactgcgtt agcaatttaa ctgtgataaa ctaccgcatt aaagcttatc gatgataagc    2340

tgtcaaacat gagaattctt gaagacgaaa gggcctcgtg atacgcctat ttttataggt    2400

taatgtcatg ataataatgg tttcttagac gtcaggtggc acttttcggg gaaatgtgcg    2460

cggaacccct atttgtttat ttttctaaat acattcaaat atgtatccgc tcatgagaca    2520

ataaccctga taaatgcttc aataatattg aaaaaggaag agtatgagta ttcaacattt    2580

ccgtgtcgcc cttattccct tttttgcggc attttgcctt cctgtttttg ctcacccaga    2640

aacgctggtg aaagtaaaag atgctgaaga tcagttgggt gcacgagtgg gttacatcga    2700

actggatctc aacagcggta agatccttga gagttttcgc cccgaagaac gttttccaat    2760

gatgagcact tttaaagttc tgctatgtgg cgcggtatta tcccgtgttg acgccgggca    2820

agagcaactc ggtcgccgca tacactattc tcagaatgac ttggttgagt actcaccagt    2880

cacagaaaag catcttacgg atggcatgac agtaagagaa ttatgcagtg ctgccataac    2940

catgagtgat aacactgcgg ccaacttact tctgacaacg atcggaggac cgaaggagct    3000

aaccgctttt ttgcacaaca tgggggatca tgtaactcgc cttgatcgtt gggaaccgga    3060

gctgaatgaa gccataccaa acgacgagcg tgacaccacg atgcctgcag caatggcaac    3120

aacgttgcgc aaactattaa ctggcgaact acttactcta gcttcccggc aacaattaat    3180

agactggatg gaggcggata aagttgcagg accacttctg cgctcggccc ttccggctgg    3240

ctggtttatt gctgataaat ctggagccgg tgagcgtggg tctcgcggta tcattgcagc    3300

actggggcca gatggtaagc cctcccgtat cgtagttatc tacacgacgg ggagtcaggc    3360

aactatggat gaacgaaata gacagatcgc tgagataggt gcctcactga ttaagcattg    3420
```

```
gtaactgtca gaccaagttt actcatatat actttagatt gatttaaaac ttcattttta    3480

atttaaaagg atctaggtga agatcctttt tgataatctc atgaccaaaa tcccttaacg    3540

tgagttttcg ttccactgag cgtcagaccc cgtagaaaag atcaaaggat cttcttgaga    3600

tcctttttt  ctgcgcgtaa tctgctgctt gcaaacaaaa aaaccaccgc taccagcggt    3660

ggtttgtttg ccggatcaag agctaccaac tcttttttccg aaggtaactg gcttcagcag    3720

agcgcagata ccaaatactg tccttctagt gtagccgtag ttaggccacc acttcaagaa    3780

ctctgtagca ccgcctacat acctcgctct gctaatcctg ttaccagtgg ctgctgccag    3840

tggcgataag tcgtgtctta ccgggttgga ctcaagacga tagttaccgg ataaggcgca    3900

gcggtcgggc tgaacggggg gttcgtgcac acagcccagc ttggagcgaa cgacctacac    3960

cgaactgaga tacctacagc gtgagctatg agaaagcgcc acgcttcccg aagggagaaa    4020

ggcggacagg tatccggtaa gcggcagggt cggaacagga gagcgcacga gggagcttcc    4080

aggggggaaac gcctggtatc tttatagtcc tgtcgggttt cgccacctct gacttgagcg    4140

tcgatttttg tgatgctcgt caggggggcg gagcctatgg aaaaacgcca gcaacgcggc    4200

cttttttacgg ttcctggcct tttgctggcc ttttgctcac atgttctttc ctgcgttatc    4260

ccctgattct gtggataacc gtattaccgc ctttgagtga gctgataccg ctcgccgcag    4320

ccgaacgacc gagcgcagcg agtcagtgag cgaggaagcg gaagagcgcc tgatgcggta    4380

ttttctcctt acgcatctgt gcggtatttc acaccgcata tatggtgcac tctcagtaca    4440

atctgctctg atgccgcata gttaagccag tatacactcc gctatcgcta cgtgactggg    4500

tcatggctgc gccccgacac ccgccaacac ccgctgacgc gccctgacgg gcttgtctgc    4560

tcccggcatc cgcttacaga caagctgtga ccgtctccgg gagctgcatg tgtcagaggt    4620

tttcaccgtc atcaccgaaa cgcgcgaggc agctgcggta aagctcatca gcgtggtcgt    4680

gaagcgattc acagatgtct gcctgttcat ccgcgtccag ctcgttgagt ttctccagaa    4740

gcgttaatgt ctggcttctg ataaagcggg ccatgttaag gcggtttttt cctgtttgg    4800

tcactgatgc ctccgtgtaa gggggatttc tgttcatggg ggtaatgata ccgatgaaac    4860

gagagaggat gctcacgata cgggttactg atgatgaaca tgcccggtta ctggaacgtt    4920

gtgagggtaa acaactggcg gtatggatgc ggcgggacca gagaaaaatc actcagggtc    4980

aatgccagcg cttcgttaat acagatgtag gtgttccaca gggtagccag cagcatcctg    5040

cgatgcagat ccggaacata atggtgcagg gcgctgactt ccgcgtttcc agactttacg    5100

aaacacggaa accgaagacc attcatgttg ttgctcaggt cgcagacgtt ttgcagcagc    5160

agtcgcttca cgttcgctcg cgtatcggtg attcattctg ctaaccagta aggcaacccc    5220

gccagcctag ccgggtcctc aacgacagga gcacgatcat gcgcacccgt ggccaggacc    5280
```

```
caacgctgcc cgagatgcgc cgcgtgcggc tgctggagat ggcggacgcg atggatatgt    5340

tctgccaagg gttggtttgc gcattcacag ttctccgcaa gaattgattg gctccaattc    5400

ttggagtggt gaatccgtta gcgaggtgcc gccggcttcc attcaggtcg aggtggcccg    5460

gctccatgca ccgcgacgca acgcggggag gcagacaagg tatagggcgg cgcctacaat    5520

ccatgccaac ccgttccatg tgctcgccga ggcggcataa atcgccgtga cgatcagcgg    5580

tccagtgatc gaagttaggc tggtaagagc cgcgagcgat ccttgaagct gtccctgatg    5640

gtcgtcatct acctgcctgg acagcatggc ctgcaacgcg ggcatcccga tgccgccgga    5700

agcgagaaga atcataatgg ggaaggccat ccagcctcgc gtcgcgaacg ccagcaagac    5760

gtagcccagc gcgtcggccg ccatgccggc gataatggcc tgcttctcgc cgaaacgttt    5820

ggtggcggga ccagtgacga aggcttgagc gagggcgtgc aagattccga ataccgcaag    5880

cgacaggccg atcatcgtcg cgctccagcg aaagcggtcc tcgccgaaaa tgacccagag    5940

cgctgccggc acctgtccta cgagttgcat gataaagaag acagtcataa gtgcggcgac    6000

gatagtcatg ccccgcgccc accggaagga gctgactggg ttgaaggctc tcaagggcat    6060

cggtcgatcg acgctctccc ttatgcgact cctgcattag gaagcagccc agtagtaggt    6120

tgaggccgtt gagcaccgcc gccgcaagga atggtgcatg caaggagatg gcgcccaaca    6180

gtccccggc cacggggcct gccaccatac ccacgccgaa acaagcgctc atgagcccga    6240

agtggcgagc ccgatcttcc ccatcggtga tgtcggcgat ataggcgcca gcaaccgcac    6300

ctgtggcgcc ggtgatgccg gccacgatgc gtccggcgta gaggatcgag atct    6354
```

<210> 146

<211> 6613

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST18

<220>

<221> gene

<222> (474)..(1449)

<223> ampR


<220>

```
<221>  gene

<222>  (1590)..(2244)

<223>  ori


<220>

<221>  gene

<222>  (2738)..(3850)

<223>  genR


<220>

<221>  gene

<222>  (4127)..(4251)

<223>  attR1


<220>

<221>  gene

<222>  (4501)..(5160)

<223>  CmR


<220>

<221>  gene

<222>  (5280)..(5364)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (5502)..(5807)

<223>  ccdB


<220>

<221>  gene
```

<222>    (5848)..(5972)

<223>    attR2


<220>

<221>    gene

<222>    (25)..(6595)

<223>    lacZ


<400>    146
gacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc        60

gctacacttg ccagcgccct agcgcccgct cctttcgctt tcttcccttc ctttctcgcc       120

acgttcgccg gctttccccg tcaagctcta aatcggggc tccctttagg gttccgattt       180

agtgctttac ggcacctcga ccccaaaaaa cttgattagg gtgatggttc acgtagtggg       240

ccatcgccct gatagacggt ttttcgccct ttgacgttgg agtccacgtt ctttaatagt       300

ggactcttgt tccaaactgg aacaacactc aaccctatct cggtctattc ttttgattta       360

taagggattt tgccgatttc ggcctattgg ttaaaaaatg agctgattta acaaaaattt       420

aacgcgaatt ttaacaaaat attaacgttt acaatttcag gtggcacttt tcggggaaat       480

gtgcgcggaa cccctatttg tttattttc taaatacatt caaatatgta tccgctcatg       540

agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat gagtattcaa       600

catttccgtg tcgcccttat tcccttttt gcggcatttt gccttcctgt ttttgctcac       660

ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg agtgggttac       720

atcgaactgg atctcaacag cggtaagatc cttgagagtt ttcgccccga gaacgtttt       780

ccaatgatga gcacttttaa agttctgcta tgtggcgcgg tattatcccg tattgacgcc       840

gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggt tgagtactca       900

ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg cagtgctgcc       960

ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg aggaccgaag      1020

gagctaaccg cttttttgca caacatgggg gatcatgtaa ctcgccttga tcgttgggaa      1080

ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg      1140

gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc ccggcaacaa      1200

ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc ggcccttccg      1260

gctggctggt ttattgctga taaatctgga gccggtgagc gtgggtctcg cggtatcatt      1320

gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac gacggggagt      1380

caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc actgattaag    1440

cattggtaac tgtcagacca agtttactca tatatacttt agattgattt aaaacttcat    1500

ttttaattta aaaggatcta ggtgaagatc cttttgata atctcatgac caaaatccct    1560

taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa aggatcttct    1620

tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca    1680

gcggtggttt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt aactggcttc    1740

agcagagcgc agataccaaa tactgtcctt ctagtgtagc cgtagttagg ccaccacttc    1800

aagaactctg tagcaccgcc tacatacctc gctctgctaa tcctgttacc agtggctgct    1860

gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag    1920

gcgcagcggt cgggctgaac ggggggttcg tgcacacagc ccagcttgga gcgaacgacc    1980

tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct tcccgaaggg    2040

agaaaggcgg acaggtatcc ggtaagcggc agggtcggaa caggagagcg cacgagggag    2100

cttccagggg gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca cctctgactt    2160

gagcgtcgat ttttgtgatg ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac    2220

gcggcctttt tacggttcct ggccttttgc tggccttttg ctcacatgtt ctttcctgcg    2280

ttatcccctg attctgtgga taaccgtatt accgcctttg agtgagctga taccgctcgc    2340

cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcggaaga gcgcctgatg    2400

cggtatttc tccttacgca tctgtgcggt atttcacacc gcagaccagc cgcgtaacct    2460

ggcaaaatcg gttacggttg agtaataaat ggatgccctg cgtaagcggg tgtgggcgga    2520

caataaagtc ttaaactgaa caaaatagat ctaaactatg acaataaagt cttaaactag    2580

acagaatagt tgtaaactga aatcagtcca gttatgctgt gaaaaagcat actggacttt    2640

tgttatggct aaagcaaact cttcattttc tgaagtgcaa attgcccgtc gtattaaaga    2700

ggggcgtggc caagggcatg gtaaagacta tattcgcggc gttgtgacaa tttaccgaac    2760

aactccgcgg ccgggaagcc gatctcggct tgaacgaatt gttaggtggc ggtacttggg    2820

tcgatatcaa agtgcatcac ttcttcccgt atgcccaact ttgtatagag agccactgcg    2880

ggatcgtcac cgtaatctgc ttgcacgtag atcacataag caccaagcgc gttggcctca    2940

tgcttgagga gattgatgag cgcggtggca atgccctgcc tccggtgctc gccggagact    3000

gcgagatcat agatatagat ctcactacgc ggctgctcaa acctgggcag aacgtaagcc    3060

gcgagagcgc caacaaccgc ttcttggtcg aaggcagcaa gcgcgatgaa tgtcttacta    3120

cggagcaagt tcccgaggta atcggagtcc ggctgatgtt gggagtaggt ggctacgtct    3180

ccgaactcac gaccgaaaag atcaagagca gcccgcatgg atttgacttg gtcagggccg    3240

```
agcctacatg tgcgaatgat gcccatactt gagccaccta actttgtttt agggcgactg   3300

ccctgctgcg taacatcgtt gctgctgcgt aacatcgttg ctgctccata acatcaaaca   3360

tcgacccacg gcgtaacgcg cttgctgctt ggatgcccga ggcatagact gtacaaaaaa   3420

acagtcataa caagccatga aaaccgccac tgcgccgtta ccaccgctgc gttcggtcaa   3480

ggttctggac cagttgcgtg agcgcatacg ctacttgcat tacagtttac gaaccgaaca   3540

ggcttatgtc aactgggttc gtgccttcat ccgtttccac ggtgtgcgtc acccggcaac   3600

cttgggcagc agcgaagtcg aggcatttct gtcctggctg gcgaacgagc gcaaggtttc   3660

ggtctccacg catcgtcagg cattggcggc cttgctgttc ttctacggca aggtgctgtg   3720

cacggatctg ccctggcttc aggagatcgg aagacctcgg ccgtcgcggc gcttgccggt   3780

ggtgctgacc ccggatgaag tggttcgcat cctcggtttt ctggaaggcg agcatcgttt   3840

gttcgcccag gactctagct atagttctag tggttggcta cgtatcgagc aagaaaataa   3900

aacgccaaac gcgttggagt cttgtgtgct atttttacaa agattcagaa atacgcatca   3960

cttacaacaa gggggactat gaaattatgc attttgagga tgccgggacc tttaattcaa   4020

cccaacacaa tatattatag ttaaataaga attatttatc aaatcatttg tatattaatt   4080

aaaatactat actgtaaatt acattttatt tacaatgagg atcatcacaa gtttgtacaa   4140

aaaagctgaa cgagaaacgt aaaatgatat aaatatcaat atattaaatt agattttgca   4200

taaaaaacag actacataat actgtaaaac acaacatatc cagtcactat ggcggccgct   4260

aagttggcag catcacccga cgcactttgc gccgaataaa tacctgtgac ggaagatcac   4320

ttcgcagaat aaataaatcc tggtgtccct gttgataccg ggaagccctg gccaacttt   4380

tggcgaaaat gagacgttga tcggcacgta agaggttcca actttcacca taatgaaata   4440

agatcactac cgggcgtatt ttttgagtta tcgagatttt caggagctaa ggaagctaaa   4500

atggagaaaa aaatcactgg ataccacc gttgatatat cccaatggca tcgtaaagaa   4560

catttgagg catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat   4620

attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt   4680

cacattcttg cccgcctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggt   4740

gagctggtga tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa   4800

acgttttcat cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat   4860

tcgcaagatg tggcgtgtta cggtgaaaac ctggcctatt ccctaaagg gtttattgag   4920

aatatgtttt tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaacgtg   4980

gccaatatgg acaacttctt cgccccgtt ttcaccatgg gcaaatatta tacgcaaggc   5040

gacaaggtgc tgatgccgct ggcgattcag gttcatcatg ccgtctgtga tggcttccat   5100
```

```
gtcggcagaa tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa    5160

acgcgtggat ccggcttact aaaagccaga taacagtatg cgtatttgcg cgctgatttt    5220

tgcggtataa gaatatatac tgatatgtat acccgaagta tgtcaaaaag aggtgtgcta    5280

tgaagcagcg tattacagtg acagttgaca gcgacagcta tcagttgctc aaggcatata    5340

tgatgtcaat atctccggtc tggtaagcac aaccatgcag aatgaagccc gtcgtctgcg    5400

tgccgaacgc tggaaagcgg aaaatcagga agggatggct gaggtcgccc ggtttattga    5460

aatgaacggc tcttttgctg acgagaacag ggactggtga aatgcagttt aaggtttaca    5520

cctataaaag agagagccgt tatcgtctgt ttgtggatgt acagagtgat attattgaca    5580

cgcccgggcg acggatggtg atccccctgg ccagtgcacg tctgctgtca gataaagtct    5640

cccgtgaact ttacccggtg gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg    5700

atatggccag tgtgccggtc tccgttatcg gggaagaagt ggctgatctc agccaccgcg    5760

aaaatgacat caaaaacgcc attaacctga tgttctgggg aatataaatg tcaggctccc    5820

ttatacacag ccagtctgca ggtcgaccat agtgactgga tatgttgtgt tttacagtat    5880

tatgtagtct gttttttatg caaaatctaa tttaatatat tgatatttat atcattttac    5940

gtttctcgtt cagctttctt gtacaaagtg gtgatagctt gtcgagaagt actagaggat    6000

cataatcagc cataccacat ttgtagaggt tttacttgct ttaaaaaacc tcccacacct    6060

cccctgaac ctgaaacata aaatgaatgc aattgttgtt gttaacttgt ttattgcagc     6120

ttataatggt tacaaataaa gcaatagcat cacaaatttc acaaataaag catttttttc    6180

actgcattct agttgtggtt tgtccaaact catcaatgta tcttatcatg tctggatctg    6240

atcactgctt gagcctagga gatccgaacc agataagtga aatctagttc caaactattt    6300

tgtcattttt aattttcgta ttagcttacg acgctacacc cagttcccat ctatttgtc     6360

actcttccct aaataatcct taaaaactcc atttccaccc ctcccagttc ccaactattt    6420

tgtccgccca cagcggggca ttttttcttcc tgttatgttt ttaatcaaac atcctgccaa    6480

ctccatgtga caaaccgtca tcttcggcta cttttttctct gtcacagaat gaaaattttt    6540

ctgtcatctc ttcgttatta atgtttgtaa ttgactgaat atcaacgctt atttgcagcc    6600

tgaatggcga atg                                                       6613
```

<210> 147

<211> 6668

<212> DNA

<213> Artificial Sequence

<220>

<223>   pDEST19

<220>

<221>   gene

<222>   (391)..(515)

<223>   attR1


<220>

<221>   gene

<222>   (765)..(1424)

<223>   CmR


<220>

<221>   gene

<222>   (1544)..(1628)

<223>   inactivated ccdA


<220>

<221>   gene

<222>   (1766)..(2071)

<223>   ccdB


<220>

<221>   gene

<222>   (2112)..(2236)

<223>   attR2


<220>

<221>   gene

<222>   (2852)..(2895)

<223>   lacZ

<220>

<221> gene

<222> (3344)..(4319)

<223> ampR


<220>

<221> gene

<222> (4460)..(5114)

<223> ori


<220>

<221> gene

<222> (52)..(5608)

<223> genR


<400> 147
```
agtggttcgc atcctcggtt ttctggaagg cgagcatcgt ttgttcgccc aggactctag     60
ctatagttct agtggttggc tacgtatatc aaatacttgt aggtgacgcc gtcatctttc    120
cattgtaacg taaatggcaa cttgtagatg aacgcgctgt caaaaaaccg gccagtttct    180
tccacaaact cgcgcacggc tgtctcgtaa acttttgcgt cgcaacaatc gcgatgacct    240
cgtggtatgg aaattttttc taaaaaagtg tcgttcatgt cggcggcggg cgcgttcgcg    300
ctccggtacg cgcgacgggc acacagcagg acagccttgt ccggctcgat tatcataaac    360
aatcctgcag gcatgcaagc tcggatcatc acaagtttgt acaaaaaagc tgaacgagaa    420
acgtaaaatg atataaatat caatatatta aattagattt tgcataaaaa acagactaca    480
taatactgta aaacacaaca tatccagtca ctatggcggc cgctaagttg gcagcatcac    540
ccgacgcact ttgcgccgaa taaatacctg tgacggaaga tcacttcgca gaataaataa    600
atcctggtgt ccctgttgat accgggaagc cctgggccaa cttttggcga aaatgagacg    660
ttgatcggca cgtaagaggt tccaactttc accataatga ataagatca ctaccgggcg    720
tattttttga gttatcgaga ttttcaggag ctaaggaagc taaaatggag aaaaaaatca    780
ctggatatac caccgttgat atatcccaat ggcatcgtaa agaacatttt gaggcatttc    840
agtcagttgc tcaatgtacc tataaccaga ccgttcagct ggatattacg gcctttttaa    900
```

agaccgtaaa gaaaaataag cacaagtttt atccggcctt tattcacatt cttgcccgcc     960

tgatgaatgc tcatccggaa ttccgtatgg caatgaaaga cggtgagctg gtgatatggg     1020

atagtgttca cccttgttac accgttttcc atgagcaaac tgaaacgttt tcatcgctct     1080

ggagtgaata ccacgacgat ttccggcagt ttctacacat atattcgcaa gatgtggcgt     1140

gttacggtga aaacctggcc tatttcccta aagggtttat tgagaatatg ttttcgtct      1200

cagccaatcc ctgggtgagt ttcaccagtt ttgatttaaa cgtggccaat atggacaact     1260

tcttcgcccc cgttttcacc atgggcaaat attatacgca aggcgacaag gtgctgatgc     1320

cgctggcgat tcaggttcat catgccgtct gtgatggctt ccatgtcggc agaatgctta     1380

atgaattaca acagtactgc gatgagtggc agggcggggc gtaaacgcgt ggatccggct     1440

tactaaaagc cagataacag tatgcgtatt tgcgcgctga tttttgcggt ataagaatat     1500

atactgatat gtatacccga agtatgtcaa aaagaggtgt gctatgaagc agcgtattac     1560

agtgacagtt gacagcgaca gctatcagtt gctcaaggca tatatgatgt caatatctcc     1620

ggtctggtaa gcacaaccat gcagaatgaa gcccgtcgtc tgcgtgccga acgctggaaa     1680

gcggaaaatc aggaagggat ggctgaggtc gcccggttta ttgaaatgaa cggctctttt     1740

gctgacgaga acagggactg gtgaaatgca gtttaaggtt tacacctata aaagagagag     1800

ccgttatcgt ctgtttgtgg atgtacagag tgatattatt gacacgcccg ggcgacggat     1860

ggtgatcccc ctggccagtg cacgtctgct gtcagataaa gtctcccgtg aactttaccc     1920

ggtggtgcat atcggggatg aaagctggcg catgatgacc accgatatgg ccagtgtgcc     1980

ggtctccgtt atcggggaag aagtggctga tctcagccac cgcgaaaatg acatcaaaaa     2040

cgccattaac ctgatgttct ggggaatata aatgtcaggc tcccttatac acagccagtc     2100

tgcaggtcga ccatagtgac tggatatgtt gtgttttaca gtattatgta gtctgttttt     2160

tatgcaaaat ctaatttaat atattgatat ttatatcatt ttacgtttct cgttcagctt     2220

tcttgtacaa agtggtgatc gagaagtact agaggatcat aatcagccat accacatttg     2280

tagaggtttt acttgcttta aaaaacctcc cacacctccc cctgaacctg aaacataaaa     2340

tgaatgcaat tgttgttgtt aacttgttta ttgcagctta taatggttac aaataaagca     2400

atagcatcac aaatttcaca ataaagcat tttttcact gcattctagt tgtggtttgt      2460

ccaaactcat caatgtatct tatcatgtct ggatctgatc actgcttgag cctaggagat     2520

ccgaaccaga taagtgaaat ctagttccaa actatttgt cattttaat tttcgtatta      2580

gcttacgacg ctacacccag ttcccatcta ttttgtcact cttccctaaa taatccttaa     2640

aaactccatt tccacccctc ccagttccca actatttgt ccgcccacag cggggcattt      2700

ttcttcctgt tatgtttta atcaaacatc ctgccaactc catgtgacaa accgtcatct      2760

```
tcggctactt tttctctgtc acagaatgaa aatttttctg tcatctcttc gttattaatg   2820

tttgtaattg actgaatatc aacgcttatt tgcagcctga atggcgaatg gacgcgccct   2880

gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc gctacacttg   2940

ccagcgccct agcgcccgct cctttcgctt tcttcccttc ctttctcgcc acgttcgccg   3000

gctttccccg tcaagctcta aatcgggggc tccctttagg gttccgattt agtgctttac   3060

ggcacctcga ccccaaaaaa cttgattagg gtgatggttc acgtagtggg ccatcgccct   3120

gatagacggt ttttcgccct ttgacgttgg agtccacgtt ctttaatagt ggactcttgt   3180

tccaaactgg aacaacactc aaccctatct cggtctattc ttttgattta taagggattt   3240

tgccgatttc ggcctattgg ttaaaaaatg agctgattta acaaaaattt aacgcgaatt   3300

ttaacaaaat attaacgttt acaatttcag gtggcacttt tcggggaaat gtgcgcggaa   3360

cccctatttg tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac   3420

cctgataaat gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg   3480

tcgcccttat tccctttttt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc   3540

tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg   3600

atctcaacag cggtaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga   3660

gcactttttaa agttctgcta tgtggcgcgg tattatcccg tattgacgcc gggcaagagc   3720

aactcggtcg ccgcatacac tattctcaga atgacttggt tgagtactca ccagtcacag   3780

aaaagcatct tacggatggc atgacagtaa gagaattatg cagtgctgcc ataaccatga   3840

gtgataacac tgcggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg   3900

cttttttgca caacatgggg gatcatgtaa ctcgccttga tcgttgggaa ccggagctga   3960

atgaagccat accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt   4020

tgcgcaaact attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact   4080

ggatggaggc ggataaagtt gcaggaccac ttctgcgctc ggcccttccg gctggctggt   4140

ttattgctga taaatctgga gccggtgagc gtgggtctcg cggtatcatt gcagcactgg   4200

ggccagatgg taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta   4260

tggatgaacg aaatagacag atcgctgaga taggtgcctc actgattaag cattggtaac   4320

tgtcagacca agtttactca tatatacttt agattgattt aaaacttcat ttttaattta   4380

aaaggatcta ggtgaagatc cttttgata atctcatgac caaaatccct taacgtgagt   4440

tttcgttcca ctgagcgtca gacccgtag aaaagatcaa aggatcttct tgagatcctt   4500

tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt   4560

gtttgccgga tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc   4620
```

```
agataccaaa tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg   4680

tagcaccgcc tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg   4740

ataagtcgtg tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcggt   4800

cgggctgaac ggggggttcg tgcacacagc ccagcttgga gcgaacgacc tacaccgaac   4860

tgagatacct acagcgtgag cattgagaaa gcgccacgct tcccgaaggg agaaaggcgg   4920

acaggtatcc ggtaagcggc agggtcggaa caggagagcg cacgagggag cttccagggg   4980

gaaacgcctg gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat   5040

ttttgtgatg ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt   5100

tacggttcct ggccttttgc tggccttttg ctcacatgtt ctttcctgcg ttatcccctg   5160

attctgtgga taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa   5220

cgaccgagcg cagcgagtca gtgagcgagg aagcggaaga gcgcctgatg cggtattttc   5280

tccttacgca tctgtgcggt atttcacacc gcagaccagc cgcgtaacct ggcaaaatcg   5340

gttacggttg agtaataaat ggatgccctg cgtaagcggg tgtgggcgga caataaagtc   5400

ttaaactgaa caaaatagat ctaaactatg acaataaagt cttaaactag acagaatagt   5460

tgtaaactga aatcagtcca gttatgctgt gaaaaagcat actggacttt gttatggct    5520

aaagcaaact cttcattttc tgaagtgcaa attgcccgtc gtattaaaga ggggcgtggc   5580

caagggcatg gtaaagacta tattcgcggc gttgtgacaa tttaccgaac aactccgcgg   5640

ccgggaagcc gatctcggct tgaacgaatt gttaggtggc ggtacttggg tcgatatcaa   5700

agtgcatcac ttcttcccgt atgcccaact ttgtatagag agccactgcg ggatcgtcac   5760

cgtaatctgc ttgcacgtag atcacataag caccaagcgc gttggcctca tgcttgagga   5820

gattgatgag cgcggtggca atgccctgcc tccggtgctc gccggagact gcgagatcat   5880

agatatagat ctcactacgc ggctgctcaa acctgggcag aacgtaagcc gcgagagcgc   5940

caacaaccgc ttcttggtcg aaggcagcaa gcgcgatgaa tgtcttacta cggagcaagt   6000

tcccgaggta atcggagtcc ggctgatgtt gggagtaggt ggctacgtct ccgaactcac   6060

gaccgaaaag atcaagagca gcccgcatgg atttgacttg gtcagggccg agcctacatg   6120

tgcgaatgat gcccatactt gagccaccta actttgtttt agggcgactg ccctgctgcg   6180

taacatcgtt gctgctgcgt aacatcgttg ctgctccata acatcaaaca tcgacccacg   6240

gcgtaacgcg cttgctgctt ggatgcccga ggcatagact gtacaaaaaa acagtcataa   6300

caagccatga aaaccgccac tgcgccgtta ccaccgctgc gttcggtcaa ggttctggac   6360

cagttgcgtg agcgcatacg ctacttgcat tacagtttac gaaccgaaca ggcttatgtc   6420

aactgggttc gtgccttcat ccgtttccac ggtgtgcgtc acccggcaac cttgggcagc   6480
```

```
agcgaagtcg aggcatttct gtcctggctg gcgaacgagc gcaaggtttc ggtctccacg    6540

catcgtcagg cattggcggc cttgctgttc ttctacggca aggtgctgtg cacggatctg    6600

ccctggcttc aggagatcgg aagacctcgg ccgtcgcggc gcttgccggt ggtgctgacc    6660

ccggatga                                                             6668
```

<210> 148

<211> 7066

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST20

<220>

<221> gene

<222> (592)..(1263)

<223> GST


<220>

<221> gene

<222> (1273)..(1397)

<223> attR1


<220>

<221> gene

<222> (1506)..(2165)

<223> CmR


<220>

<221> gene

<222> (2285)..(2369)

<223> inactivated ccdA

<220>

<221> gene

<222> (2507)..(2812)

<223> ccdB


<220>

<221> gene

<222> (2853)..(2977)

<223> attR2


<220>

<221> gene

<222> (4214)..(5064)

<223> ampR


<220>

<221> gene

<222> (5263)..(5843)

<223> ori


<400> 148
```
ccactgcgcc gttaccaccg ctgcgttcgg tcaaggttct ggaccagttg cgtgagcgca      60

tacgctactt gcattacagt ttacgaaccg aacaggctta tgtcaactgg gttcgtgcct     120

tcatccgttt ccacggtgtg cgtcacccgg caaccttggg cagcagcgaa gtcgaggcat     180

ttctgtcctg gctggcgaac gagcgcaagg tttcggtctc cacgcatcgt caggcattgg     240

cggccttgct gttcttctac ggcaaggtgc tgtgcacgga tctgccctgg cttcaggaga     300

tcggaagacc tcggccgtcg cggcgcttgc cggtggtgct gaccccggat gaagtggttc     360

gcatcctcgg ttttctggaa ggcgagcatc gtttgttcgc ccaggactct agctatagtt     420

ctagtggttg gctacgtata ctccggaata ttaatagatc atggagataa ttaaaatgat     480

aaccatctcg caaataaata agtattttac tgttttcgta acagttttgt aataaaaaaa     540

cctataaata ttccggatta ttcataccgt cccaccatcg ggcgcggatc catggcccct     600

atactaggtt attggaaaat taagggcctt gtgcaaccca ctcgacttct tttggaatat     660
```

```
cttgaagaaa aatatgaaga gcatttgtat gagcgcgatg aaggtgataa atggcgaaac      720

aaaaagtttg aattgggttt ggagtttccc aatcttcctt attatattga tggtgatgtt      780

aaattaacac agtctatggc catcatacgt tatatagctg acaagcacaa catgttgggt      840

ggttgtccaa aagagcgtgc agagatttca atgcttgaag gagcggtttt ggatattaga      900

tacggtgttt cgagaattgc atatagtaaa gactttgaaa ctctcaaagt tgattttctt      960

agcaagctac ctgaaatgct gaaaatgttc gaagatcgtt tatgtcataa aacatattta     1020

aatggtgatc atgtaaccca tcctgacttc atgttgtatg acgctcttga tgttgtttta     1080

tacatggacc caatgtgcct ggatgcgttc ccaaaattag tttgttttaa aaaacgtatt     1140

gaagctatcc cacaaattga taagtacttg aaatccagca agtatatagc atggcctttg     1200

cagggctggc aagccacgtt tggtggtggc gaccatcctc caaaatcgga tctggttccg     1260

cgtcataatc aaacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa tgatataaat     1320

atcaatatat taaattagat tttgcataaa aaacagacta cataatactg taaaacacaa     1380

catatccagt cactatggcg gccgcattag gcaccccagg ctttacactt tatgcttccg     1440

gctcgtatgt tgtgtggatt ttgagttagg atccggcgag attttcagga gctaaggaag     1500

ctaaaatgga gaaaaaaatc actggatata ccaccgttga tatatcccaa tggcatcgta     1560

aagaacattt tgaggcattt cagtcagttg ctcaatgtac ctataaccag accgttcagc     1620

tggatattac ggccttttta aagaccgtaa agaaaaataa gcacaagttt tatccggcct     1680

ttattcacat tcttgcccgc ctgatgaatg ctcatccgga attccgtatg gcaatgaaag     1740

acggtgagct ggtgatatgg gatagtgttc acccttgtta caccgttttc catgagcaaa     1800

ctgaaacgtt ttcatcgctc tggagtgaat accacgacga tttccggcag tttctacaca     1860

tatattcgca agatgtggcg tgttacggtg aaaacctggc ctatttccct aaagggttta     1920

ttgagaatat gtttttcgtc tcagccaatc cctgggtgag tttcaccagt tttgatttaa     1980

acgtggccaa tatggacaac ttcttcgccc ccgttttcac catgggcaaa tattatacgc     2040

aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca tcatgccgtc tgtgatggct     2100

tccatgtcgg cagaatgctt aatgaattac aacagtactg cgatgagtgg cagggcgggg     2160

cgtaatctag aggatccggc ttactaaaag ccagataaca gtatgcgtat ttgcgcgctg     2220

atttttgcgg tataagaata tatactgata tgtatacccg aagtatgtca aaaagaggtg     2280

tgctatgaag cagcgtatta cagtgacagt tgacagcgac agctatcagt tgctcaaggc     2340

atatatgatg tcaatatctc cggtctggta agcacaacca tgcagaatga agcccgtcgt     2400

ctgcgtgccg aacgctggaa agcggaaaat caggaaggga tggctgaggt cgcccggttt     2460

attgaaatga acggctcttt tgctgacgag aacagggact ggtgaaatgc agtttaaggt     2520
```

```
ttacacctat aaaagagaga gccgttatcg tctgtttgtg gatgtacaga gtgatattat    2580

tgacacgccc gggcgacgga tggtgatccc cctggccagt gcacgtctgc tgtcagataa    2640

agtctcccgt gaactttacc cggtggtgca tatcggggat gaaagctggc gcatgatgac    2700

caccgatatg gccagtgtgc cggtctccgt tatcggggaa gaagtggctg atctcagcca    2760

ccgcgaaaat gacatcaaaa acgccattaa cctgatgttc tggggaatat aaatgtcagg    2820

ctcccttata cacagccagt ctgcaggtcg accatagtga ctggatatgt tgtgttttac    2880

agtattatgt agtctgtttt ttatgcaaaa tctaatttaa tatattgata tttatatcat    2940

tttacgtttc tcgttcagct ttcttgtaca aagtggtttg atagcttgtc gagaagtact    3000

agaggatcat aatcagccat accacatttg tagaggtttt acttgcttta aaaaacctcc    3060

cacacctccc cctgaacctg aaacataaaa tgaatgcaat tgttgttgtt aacttgttta    3120

ttgcagctta taatggttac aaataaagca atagcatcac aaatttcaca aataaagcat    3180

ttttttcact gcattctagt tgtggtttgt ccaaactcat caatgtatct tatcatgtct    3240

ggatctgatc actgcttgag cctaggagat ccgaaccaga taagtgaaat ctagttccaa    3300

actattttgt cattttaat tttcgtatta gcttacgacg ctacacccag ttcccatcta    3360

ttttgtcact cttccctaaa taatccttaa aaactccatt tccacccctc ccagttccca    3420

actattttgt ccgcccacag cggggcattt ttcttcctgt tatgtttta atcaaacatc    3480

ctgccaactc catgtgacaa accgtcatct tcggctactt tttctctgtc acagaatgaa    3540

aattttctg tcatctcttc gttattaatg tttgtaattg actgaatatc aacgcttatt    3600

tgcagcctga atggcgaatg gacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg    3660

tggttacgcg cagcgtgacc gctacacttg ccagcgccct agcgcccgct cctttcgctt    3720

tcttcccttc ctttctcgcc acgttcgccg gctttccccg tcaagctcta atcgggggc     3780

tccctttagg gttccgattt agtgctttac ggcacctcga ccccaaaaaa cttgattagg    3840

gtgatggttc acgtagtggg ccatcgccct gatagacggt ttttcgccct ttgacgttgg    3900

agtccacgtt ctttaatagt ggactcttgt tccaaactgg aacaacactc aaccctatct    3960

cggtctattc ttttgattta taagggattt tgccgatttc ggcctattgg ttaaaaaatg    4020

agctgattta acaaaaattt aacgcgaatt ttaacaaaat attaacgttt acaatttcag    4080

gtggcacttt tcggggaaat gtgcgcggaa cccctatttg tttattttc taaatacatt    4140

caaatatgta tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa    4200

ggaagagtat gagtattcaa catttccgtg tcgcccttat tcccttttt gcggcatttt     4260

gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt    4320

tgggtgcacg agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt    4380
```

```
ttcgccccga agaacgtttt ccaatgatga gcacttttaa agttctgcta tgtggcgcgg   4440

tattatcccg tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga   4500

atgacttggt tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa   4560

gagaattatg cagtgctgcc ataaccatga gtgataacac tgcggccaac ttacttctga   4620

caacgatcgg aggaccgaag gagctaaccg ctttttttgca caacatgggg gatcatgtaa   4680

ctcgccttga tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca   4740

ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact attaactggc gaactactta   4800

ctctagcttc ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac   4860

ttctgcgctc ggcccttccg gctggctggt ttattgctga taaatctgga gccggtgagc   4920

gtgggtctcg cggtatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag   4980

ttatctacac gacggggagt caggcaacta tggatgaacg aaatagacag atcgctgaga   5040

taggtgcctc actgattaag cattggtaac tgtcagacca agtttactca tatatacttt   5100

agattgattt aaaacttcat ttttaattta aaaggatcta ggtgaagatc cttttttgata   5160

atctcatgac caaaatccct taacgtgagt tttcgttcca ctgagcgtca gaccccgtag   5220

aaaagatcaa aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa   5280

caaaaaaacc accgctacca gcggtggttt gtttgccgga tcaagagcta ccaactcttt   5340

ttccgaaggt aactggcttc agcagagcgc agataccaaa tactgtcctt ctagtgtagc   5400

cgtagttagg ccaccacttc aagaactctg tagcaccgcc tacatacctc gctctgctaa   5460

tcctgttacc agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa   5520

gacgatagtt accggataag cgcagcggt cgggctgaac ggggggttcg tgcacacagc   5580

ccagcttgga gcgaacgacc tacaccgaac tgagatacct acagcgtgag cattgagaaa   5640

gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc ggtaagcggc agggtcggaa   5700

caggagagcg cacgagggag cttccagggg gaaacgcctg gtatctttat agtcctgtcg   5760

ggtttcgcca cctctgactt gagcgtcgat ttttgtgatg ctcgtcaggg gggcggagcc   5820

tatggaaaaa cgccagcaac gcggcctttt tacggttcct ggcctttttgc tggcctttttg   5880

ctcacatgtt ctttcctgcg ttatcccctg attctgtgga taaccgtatt accgcctttg   5940

agtgagctga taccgctcgc cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg   6000

aagcggaaga gcgcctgatg cggtattttc tccttacgca tctgtgcggt atttcacacc   6060

gcagaccagc cgcgtaacct ggcaaaatcg gttacggttg agtaataaat ggatgccctg   6120

cgtaagcggg tgtgggcgga caataaagtc ttaaactgaa caaaatagat ctaaactatg   6180

acaataaagt cttaaactag acagaatagt tgtaaactga aatcagtcca gttatgctgt   6240
```

```
gaaaaagcat actggacttt tgttatggct aaagcaaact cttcattttc tgaagtgcaa    6300

attgcccgtc gtattaaaga ggggcgtggc caagggcatg gtaaagacta tattcgcggc    6360

gttgtgacaa tttaccgaac aactccgcgg ccgggaagcc gatctcggct tgaacgaatt    6420

gttaggtggc ggtacttggg tcgatatcaa agtgcatcac ttcttcccgt atgcccaact    6480

ttgtatagag agccactgcg ggatcgtcac cgtaatctgc ttgcacgtag atcacataag    6540

caccaagcgc gttggcctca tgcttgagga gattgatgag cgcggtggca atgccctgcc    6600

tccggtgctc gccggagact gcgagatcat agatatagat ctcactacgc ggctgctcaa    6660

acctgggcag aacgtaagcc gcgagagcgc caacaaccgc ttcttggtcg aaggcagcaa    6720

gcgcgatgaa tgtcttacta cggagcaagt tcccgaggta atcggagtcc ggctgatgtt    6780

gggagtaggt ggctacgtct ccgaactcac gaccgaaaag atcaagagca gcccgcatgg    6840

atttgacttg gtcagggccg agcctacatg tgcgaatgat gcccatactt gagccaccta    6900

actttgtttt agggcgactg ccctgctgcg taacatcgtt gctgctgcgt aacatcgttg    6960

ctgctccata acatcaaaca tcgacccacg gcgtaacgcg cttgctgctt ggatgcccga    7020

ggcatagact gtacaaaaaa acagtcataa caagccatga aaaccg                    7066
```

<210> 149

<211> 11713

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST21

<220>

<221> gene

<222> (857)..(1322)

<223> GAL4DB


<220>

<221> gene

<222> (1332)..(1456)

<223> attR1

<220>

<221> gene

<222> (1706)..(2365)

<223> CmR


<220>

<221> gene

<222> (2485)..(2569)

<223> inactivated ccdA


<220>

<221> gene

<222> (2707)..(3012)

<223> ccdB


<220>

<221> gene

<222> (3053)..(3177)

<223> attR2


<220>

<221> gene

<222> (3716)..(3735)

<223> pT7 (T7 promoter)


<220>

<221> gene

<222> (3899)..(4354)

<223> f1 (f1 intergenic region)


<220>

<221> gene

<222> (4414)..(6642)

<223> Leu2


<220>

<221> gene

<222> (7541)..(8515)

<223> kanR


<220>

<221> gene

<222> (9668)..(10958)

<223> CYH2


<220>

<221> gene

<222> (848)..(11118)

<223> pADH (ADH promoter)


<400> 149
```
tttattatgt tacaatatgg aagggaactt tacacttctc ctatgcacat atattaatta      60

aagtccaatg ctagtagaga aggggggtaa cacccctccg cgctctttc cgattttttt      120

ctaaaccgtg gaatatttcg gatatccttt tgttgtttcc gggtgtacaa tatggacttc      180

ctcttttctg gcaaccaaac ccatacatcg ggattcctat aataccttcg ttggtctccc      240

taacatgtag gtggcggagg ggagatatac aatagaacag ataccagaca agacataatg      300

ggctaaacaa gactacacca attacactgc ctcattgatg gtggtacata acgaactaat      360

actgtagccc tagacttgat agccatcatc atatcgaagt ttcactaccc ttttccatt      420

tgccatctat tgaagtaata ataggcgcat gcaacttctt ttcttttttt ttcttttctc      480

tctcccccgt tgttgtctca ccatatccgc aatgacaaaa aaaatgatgg aagacactaa      540

aggaaaaaat taacgacaaa gacagcacca acagatgtcg ttgttccaga gctgatgagg      600

ggtatcttcg aacacacgaa acttttttcct tccttcattc acgcacacta ctctctaatg      660

agcaacggta tacggccttc cttccagtta cttgaatttg aaataaaaaa agtttgccgc      720
```

```
tttgctatca agtataaata gacctgcaat tattaatctt ttgtttcctc gtcattgttc    780

tcgttccctt tcttccttgt ttcttttct gcacaatatt tcaagctata ccaagcatac     840

aatcaactcc aagcttgaag caagcctcct gaaagatgaa gctactgtct tctatcgaac    900

aagcatgcga tatttgccga cttaaaaagc tcaagtgctc caaagaaaaa ccgaagtgcg    960

ccaagtgtct gaagaacaac tgggagtgtc gctactctcc caaaaccaaa aggtctccgc   1020

tgactagggc acatctgaca gaagtggaat caaggctaga aagactggaa cagctatttc   1080

tactgatttt tcctcgagaa gaccttgaca tgattttgaa aatggattct ttacaggata   1140

taaaagcatt gttaacagga ttatttgtac aagataatgt gaataaagat gccgtcacag   1200

atagattggc ttcagtggag actgatatgc ctctaacatt gagacagcat agaataagtg   1260

cgacatcatc atcggaagag agtagtaaca aaggtcaaag acagttgact gtatcgtcga   1320

ggtcgaatca aacaagtttg tacaaaaag ctgaacgaga aacgtaaaat gatataaata    1380

tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac   1440

atatccagtc actatggcgg ccgctaagtt ggcagcatca cccgacgcac tttgcgccga   1500

ataaatacct gtgacggaag atcacttcgc agaataaata aatcctggtg tccctgttga   1560

taccgggaag ccctgggcca acttttggcg aaaatgagac gttgatcggc acgtaagagg   1620

ttccaacttt caccataatg aaataagatc actaccgggc gtattttttg agttatcgag   1680

attttcagga gctaaggaag ctaaaatgga gaaaaaaatc actggatata ccaccgttga   1740

tatatcccaa tggcatcgta aagaacattt tgaggcattt cagtcagttg ctcaatgtac   1800

ctataaccag accgttcagc tggatattac ggccttttta aagaccgtaa agaaaaataa   1860

gcacaagttt tatccggcct ttattcacat tcttgcccgc ctgatgaatg ctcatccgga   1920

attccgtatg gcaatgaaag acggtgagct ggtgatatgg gatagtgttc acccttgtta   1980

caccgttttc catgagcaaa ctgaaacgtt ttcatcgctc tggagtgaat accacgacga   2040

tttccggcag tttctacaca tatattcgca agatgtggcg tgttacggtg aaaacctggc   2100

ctatttccct aaagggttta ttgagaatat gtttttcgtc tcagccaatc cctgggtgag   2160

tttcaccagt tttgatttaa acgtggccaa tatggacaac ttcttcgccc ccgttttcac   2220

catgggcaaa tattatacgc aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca   2280

tcatgccgtc tgtgatggct tccatgtcgg cagaatgctt aatgaattac aacagtactg   2340

cgatgagtgg cagggcgggg cgtaatctag aggatccggc ttactaaaag ccagataaca   2400

gtatgcgtat ttgcgcgctg attttgcgg tataagaata tatactgata tgtatacccg    2460

aagtatgtca aaagaggtg tgctatgaag cagcgtatta cagtgacagt tgacagcgac    2520

agctatcagt tgctcaaggc atatatgatg tcaatatctc cggtctggta agcacaacca   2580
```

```
tgcagaatga agcccgtcgt ctgcgtgccg aacgctggaa agcggaaaat caggaaggga    2640

tggctgaggt cgcccggttt attgaaatga acggctcttt tgctgacgag aacagggact    2700

ggtgaaatgc agtttaaggt ttacacctat aaaagagaga gccgttatcg tctgtttgtg    2760

gatgtacaga gtgatattat tgacacgccc gggcgacgga tggtgatccc cctggccagt    2820

gcacgtctgc tgtcagataa agtctcccgt gaactttacc cggtggtgca tatcggggat    2880

gaaagctggc gcatgatgac caccgatatg gccagtgtgc cggtctccgt tatcggggaa    2940

gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa acgccattaa cctgatgttc    3000

tggggaatat aaatgtcagg ctcccttata cacagccagt ctgcaggtcg accatagtga    3060

ctggatatgt tgtgttttac agtattatgt agtctgtttt ttatgcaaaa tctaatttaa    3120

tatattgata tttatatcat tttacgtttc tcgttcagct ttcttgtaca aagtggtttg    3180

atggccgcta agtaagtaag acgtcgagct ctaagtaagt aacggccgcc accgcggtgg    3240

agctttggac ttcttcgcca gaggtttggt caagtctcca atcaaggttg tcggcttgtc    3300

taccttgcca gaaatttacg aaaagatgga aaagggtcaa atcgttggta gatacgttgt    3360

tgacacttct aaataagcga atttcttatg atttatgatt tttattatta aataagttat    3420

aaaaaaaata agtgtataca aattttaaag tgactcttag gttttaaaac gaaaattctt    3480

attcttgagt aactctttcc tgtaggtcag gttgctttct caggtatagc atgaggtcgc    3540

tcttattgac cacacctcta ccggcatgcc gagcaaatgc ctgcaaatcg ctccccattt    3600

cacccaattg tagatatgct aactccagca atgagttgat gaatctcggt gtgtattta    3660

tgtcctcaga ggacaatacc tgttgtaatc gttcttccac acggatccca attcgcccta    3720

tagtgagtcg tattacaatt cactggccgt cgttttacaa cgtcgtgact gggaaaaccc    3780

tggcgttacc caacttaatc gccttgcagc acatccccct ttcgccagct ggcgtaatag    3840

cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg gcgaatggac    3900

gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcgcag cgtgaccgct    3960

acacttgcca gcgccctagc gcccgctcct ttcgctttct tcccttcctt tctcgccacg    4020

ttcgccggct ttccccgtca agctctaaat cgggggctcc ctttagggtt ccgatttagt    4080

gctttacggc acctcgaccc caaaaaactt gattagggtg atggttcacg tagtgggcca    4140

tcgccctgat agacggtttt tcgccctttg acgttggagt ccacgttctt taatagtgga    4200

ctcttgttcc aaactggaac aacactcaac cctatctcgg tctattcttt tgatttataa    4260

gggattttgc cgatttcggc ctattggtta aaaaatgagc tgatttaaca aaaatttaac    4320

gcgaatttta acaaaatatt aacgtttaca atttcctgat gcggtatttt ctccttacgc    4380

atctgtgcgg tatttcacac cgcatatcga ccggtcgagg agaacttcta gtatatccac    4440
```

```
atacctaata ttattgcctt attaaaaatg gaatcggaac aattacatca aaatccacat    4500

tctcttcaaa atcaattgtc ctgtacttcc ttgttcatgt gtgttcaaaa acgttatatt    4560

tataggataa ttatactcta tttctcaaca agtaattggt tgtttggccg agcggtctaa    4620

ggcgcctgat tcaagaaata tcttgaccgc agttaactgt gggaatactc aggtatcgta    4680

agatgcaaga gttcgaatct cttagcaacc attatttttt tcctcaacat aacgagaaca    4740

cacaggggcg ctatcgcaca gaatcaaatt cgatgactgg aaattttttg ttaatttcag    4800

aggtcgcctg acgcatatac cttttcaac tgaaaaattg ggagaaaaag gaaaggtgag    4860

aggccggaac cggcttttca tatagaatag agaagcgttc atgactaaat gcttgcatca    4920

caatacttga agttgacaat attatttaag gacctattgt tttttccaat aggtggttag    4980

caatcgtctt actttctaac ttttcttacc ttttacattt cagcaatata tatatatatt    5040

tcaaggatat accattctaa tgtctgcccc tatgtctgcc cctaagaaga tcgtcgtttt    5100

gccaggtgac cacgttggtc aagaaatcac agccgaagcc attaaggttc ttaaagctat    5160

ttctgatgtt cgttccaatg tcaagttcga tttcgaaaat catttaattg gtggtgctgc    5220

tatcgatgct acaggtgtcc cacttccaga tgaggcgctg gaagcctcca agaaggttga    5280

tgccgttttg ttaggtgctg tgggtggtcc taaatggggt accggtagtg ttagacctga    5340

acaaggttta ctaaaaatcc gtaaagaact tcaattgtac gccaacttaa gaccatgtaa    5400

ctttgcatcc gactctcttt tagacttatc tccaatcaag ccacaatttg ctaaaggtac    5460

tgacttcgtt gttgtcagag aattagtggg aggtatttac tttggtaaga gaaaggaaga    5520

cgatggtgat ggtgtcgctt gggatagtga acaatacacc gttccagaag tgcaaagaat    5580

cacaagaatg gccgctttca tggccctaca acatgagcca ccattgccta tttggtcctt    5640

ggataaagct aatgttttgg cctcttcaag attatggaga aaaactgtgg aggaaaccat    5700

caagaacgaa ttccctacat tgaaggttca acatcaattg attgattctg ccgccatgat    5760

cctagttaag aacccaaccc acctaaatgg tattataatc accagcaaca tgtttggtga    5820

tatcatctcc gatgaagcct ccgttatccc aggttccttg ggtttgttgc catctgcgtc    5880

cttggcctct ttgccagaca agaacaccgc atttggtttg tacgaaccat gccacggttc    5940

tgctccagat ttgccaaaga ataaggttga ccctatcgcc actatcttgt ctgctgcaat    6000

gatgttgaaa ttgtcattga acttgcctga agaaggtaag gccattgaag atgcagttaa    6060

aaaggttttg gatgcaggta tcagaactgg tgatttaggt ggttccaaca gtaccaccga    6120

agtcggtgat gctgtcgccg aagaagttaa gaaaatcctt gcttaaaaag attctctttt    6180

tttatgatat ttgtacataa actttataaa tgaaattcat aatagaaacg acacgaaatt    6240

acaaaatgga atatgttcat agggtagacg aaactatata cgcaatctac atacatttat    6300
```

```
caagaaggag aaaaaggagg atagtaaagg aatacaggta agcaaattga tactaatggc   6360

tcaacgtgat aaggaaaaag aattgcactt taacattaat attgacaagg aggagggcac   6420

cacacaaaaa gttaggtgta acagaaaatc atgaaactac gattcctaat ttgatattgg   6480

aggattttct ctaaaaaaaa aaaaatacaa caaataaaaa acactcaatg acctgaccat   6540

ttgatggagt ttaagtcaat accttcttga accatttccc ataatggtga aagttccctc   6600

aagaatttta ctctgtcaga aacggcctta cgacgtagtc gatatggtgc actctcagta   6660

caatctgctc tgatgccgca tagttaagcc agccccgaca cccgccaaca cccgctgacg   6720

cgccctgacg ggcttgtctg ctcccggcat ccgcttacag acaagctgtg accgtctccg   6780

ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa acgcgcgaga cgaaagggcc   6840

tcgtgatacg cctattttta taggttaatg tcatgataat aatggtttct taggacggat   6900

cgcttgcctg taacttacac gcgcctcgta tcttttaatg atggaataat ttgggaattt   6960

actctgtgtt tatttatttt tatgttttgt atttggattt tagaaagtaa ataaagaagg   7020

tagaagagtt acggaatgaa gaaaaaaaaa taaacaaagg tttaaaaaat ttcaacaaaa   7080

agcgtacttt acatatatat ttattagaca agaaaagcag attaaataga tatacattcg   7140

attaacgata agtaaaatgt aaaatcacag gattttcgtg tgtggtcttc tacacagaca   7200

agatgaaaca attcggcatt aatacctgag agcaggaaga gcaagataaa aggtagtatt   7260

tgttggcgat cccctagag tcttttacat cttcggaaaa caaaaactat tttttctتا    7320

atttcttttt ttactttcta tttttaattt atatatttat attaaaaaat ttaaattata   7380

attattttta tagcacgtga tgaaaggac ccaggtggca cttttcgggg aaatgtgcgc   7440

ggaacccta tttgtttatt tttctaaata cattcaaata tgtatccgct catgagacaa   7500

taaccctgat aaatgcttca ataatctgca gctctggccc gtgtctcaaa atctctgatg   7560

ttacattgca caagataaaa atatatcatc atgaacaata aaactgtctg cttacataaa   7620

cagtaataca aggggtgtta tgagccatat tcaacgggaa acgtcttgct ggaggccgcg   7680

attaaattcc aacatggatg ctgatttata tgggtataaa tgggctcgcg ataatgtcgg   7740

gcaatcaggt gcgacaatct ttcgattgta tgggaagccc gatgcgccag agttgtttct   7800

gaaacatggc aaaggtagcg ttgccaatga tgttacagat gagatggtca gactaaactg   7860

gctgacggaa tttatgcctc ttccgaccat caagcatttt atccgtactc ctgatgatgc   7920

atggttactc accactgcga tccgcgggaa aacagcattc caggtattag aagaatatcc   7980

tgattcaggt gaaaatattg ttgatgcgct ggcagtgttc ctgcgccggt tgcattcgat   8040

tcctgtttgt aattgtcctt ttaacagcga tcgcgtattt cgtctcgctc aggcgcaatc   8100

acgaatgaat aacggtttgg ttgatgcgag tgattttgat gacgagcgta atggctggcc   8160
```

```
tgttgaacaa gtctggaaag aaatgcatac gcttttgcca ttctcaccgg attcagtcgt    8220

cactcatggt gatttctcac ttgataacct tatttttgac gaggggaaat taataggttg    8280

tattgatgtt ggacgagtcg gaatcgcaga ccgataccag gatcttgcca tcctatggaa    8340

ctgcctcggt gagttttctc cttcattaca gaaacggctt tttcaaaaat atggtattga    8400

taatcctgat atgaataaat tgcagtttca tttgatgctc gatgagtttt tctaatcaga    8460

attggttaat tggttgtaac actggcagag cattacgctg acttgacggg acggcgcatg    8520

accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagaccccgt agaaaagatc    8580

aaaggatctt cttgagatcc ttttttttctg cgcgtaatct gctgcttgca aacaaaaaaa    8640

ccaccgctac cagcggtggt ttgtttgccg gatcaagagc taccaactct ttttccgaag    8700

gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgta gccgtagtta    8760

ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct aatcctgtta    8820

ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg ggttggactc aagacgatag    8880

ttaccggata aggcgcagcg gtcgggctga acggggggtt cgtgcacaca gcccagcttg    8940

gagcgaacga cctacaccga actgagatac ctacagcgtg agcattgaga aagcgccacg    9000

cttcccgaag ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag    9060

cgcacgaggg agcttccagg ggggaacgcc tggtatcttt atagtcctgt cgggtttcgc    9120

cacctctgac ttgagcgtcg atttttgtga tgctcgtcag ggggggccgag cctatggaaa    9180

aacgccagca acgcggcctt tttacggttc ctggcctttt gctggccttt tgctcacatg    9240

ttctttcctg cgttatcccc tgattctgtg gataaccgta ttaccgcctt tgagtgagct    9300

gataccgctc gccgcagccg aacgaccgag cgcagcgagt cagtgagcga ggaagcggaa    9360

gagcgcccaa tacgcaaacc gcctctcccc gcgcgttggc cgattcatta atgcagctgg    9420

cacgacaggt ttcccgactg gaaagcgggc agtgagcgca acgcaattaa tgtgagttac    9480

ctcactcatt aggcacccca ggctttacac tttatgcttc cggctcctat gttgtgtgga    9540

attgtgagcg gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc    9600

ggaattaacc ctcactaaag ggaacaaaag ctggtaccga tcccgagctt tgcaaattaa    9660

agccttcgag cgtcccaaaa ccttctcaag caaggttttc agtataatgt tacatgcgta    9720

cacgcgtctg tacagaaaaa aaagaaaaat ttgaaatata aataacgttc ttaatactaa    9780

cataactata aaaaataaa tagggaccta gacttcaggt tgtctaactc cttccttttc    9840

ggttagagcg gatgtggggg gagggcgtga atgtaagcgt gacataacta attacatgat    9900

atcgacaaag gaaaaggggc ctgtttactc acaggctttt ttcaagtagg taattaagtc    9960

gtttctgtct ttttccttct tcaacccacc aaaggccatc ttggtacttt tttttttttt   10020
```

```
tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt   10080

tttttttttt tttttttttt tcatagaaat aatacagaag tagatgttga attagattaa   10140

actgaagata tataatttat tggaaaatac atagagcttt ttgttgatgc gcttaagcga   10200

tcaattcaac aacaccacca gcagctctga ttttttcttc agccaacttg gagacgaatc   10260

tagctttgac gataactgga acatttggaa ttctaccctt acccaagatc ttaccgtaac   10320

cggctgccaa agtgtcaata actggagcag tttccttaga agcagatttc aagtattggt   10380

ctctcttgtc ttctgggatc aatgtccaca atttgtccaa gttcaagact ggcttccaga   10440

aatgagcttg ttgcttgtgg aagtatctca taccaacctt accgaaataa cctggatggt   10500

atttatccat gttaattctg tggtgatgtt gaccaccggc catacctcta ccaccggggt   10560

gctttctgtg cttaccgata cgacctttac cggctgagac gtgacctctg tgctttctag   10620

tcttagtgaa tctggaaggc attcttgatt agttggatga ttgttctggg atttaatgca   10680

aaaatcactt aagaaggaaa atcaacggag aaagcaaacg ccatcttaaa tatacgggat   10740

acagatgaaa gggtttgaac ctatctggaa aatagcatta aacaagcgaa aaactgcgag   10800

gaaaattgtt tgcgtctctg cgggctattc acgcgccaga ggaaaatagg aaaaataaca   10860

gggcattaga aaaataattt tgattttggt aatgtgtggg tcctggtgta cagatgttac   10920

attggttaca gtactcttgt ttttgctgtg tttttcgatg aatctccaaa atggttgtta   10980

gcacatggaa gagtcaccga tgctaagtta tctctatgta agctacgtgg cgtgactttt   11040

gatgaagccg cacaagagat acaggattgg caactgcaaa tagaatctgg ggatcccccc   11100

tcgagatccg ggatcgaaga aatgatggta aatgaaatag gaaatcaagg agcatgaagg   11160

caaaagacaa atataagggt cgaacgaaaa ataaagtgaa aagtgttgat atgatgtatt   11220

tggctttgcg gcgccgaaaa aacgagttta cgcaattgca caatcatgct gactctgtgg   11280

cggacccgcg ctcttgccgg cccggcgata acgctgggcg tgaggctgtg cccggcggag   11340

tttttttgcgc ctgcattttc caaggtttac cctgcgctaa ggggcgagat tggagaagca   11400

ataagaatgc cggttggggt tgcgatgatg acgaccacga caactggtgt cattatttaa   11460

gttgccgaaa gaacctgagt gcatttgcaa catgagtata ctagaagaat gagccaagac   11520

ttgcgagacg cgagtttgcc ggtggtgcga acaatagagc gaccatgacc ttgaaggtga   11580

gacgcgcata accgctagag tactttgaag aggaaacagc aatagggttg ctaccagtat   11640

aaatagacag gtacatacaa cactggaaat ggttgtctgt ttgagtacgc tttcaattca   11700

tttgggtgtg cac                                                      11713
```

```
<210>  150

<211>  8923
```

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST22

<220>

<221> gene

<222> (904)..(1248)

<223> GAL4 AD


<220>

<221> gene

<222> (1264)..(1388)

<223> attR1


<220>

<221> gene

<222> (1638)..(2297)

<223> CmR


<220>

<221> gene

<222> (2417)..(2501)

<223> inactivated ccdA


<220>

<221> gene

<222> (2639)..(2944)

<223> ccdB


<220>

<221> gene

<222> (2985)..(3109)

<223> attR2


<220>

<221> gene

<222> (3831)..(4318)

<223> f1 (f1 intergenic region)


<220>

<221> gene

<222> (4334)..(5176)

<223> TRP1


<220>

<221> gene

<222> (6110)..(7194)

<223> ampR


<220>

<221> gene

<222> (866)..(8344)

<223> pADH (yeast ADH promoter)


<400> 150
ttcatttggg tgtgcacttt attatgttac aatatggaag ggaactttac acttctccta      60

tgcacatata ttaattaaag tccaatgcta gtagagaagg ggggtaacac ccctccgcgc     120

tcttttccga ttttttttcta aaccgtggaa tatttcggat atccttttgt tgtttccggg     180

tgtacaatat ggacttcctc ttttctggca accaaaccca tacatcggga ttcctataat     240

accttcgttg gtctccctaa catgtaggtg gcggagggga gatatacaat agaacagata     300

ccagacaaga cataatgggc taaacaagac tacaccaatt acactgcctc attgatggtg     360

gtacataacg aactaatact gtagccctag acttgatagc catcatcata tcgaagtttc     420

```
actacccttt ttccatttgc catctattga agtaataata ggcgcatgca acttctttttc    480

ttttttttc ttttctctct cccccgttgt tgtctcacca tatccgcaat gacaaaaaa    540

atgatggaag acactaaagg aaaaaattaa cgacaaagac agcaccaaca gatgtcgttg    600

ttccagagct gatgagggg atcttcgaac acacgaaact ttttccttcc ttcattcacg    660

cacactactc tctaatgagc aacggtatac ggccttcctt ccagttactt gaatttgaaa    720

taaaaaaagt ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatctttttg    780

tttcctcgtc attgttctcg ttcccttttct tccttgtttc ttttttctgca caatatttca    840

agctataccaa agcatacaat caactccaag cttatgccca agaagaagcg gaaggtctcg    900

agcggcgcca attttaatca aagtgggaat attgctgata gctcattgtc cttcactttc    960

actaacagta gcaacggtcc gaacctcata acaactcaaa caaattctca agcgctttca    1020

caaccaattg cctcctctaa cgttcatgat aacttcatga ataatgaaat cacggctagt    1080

aaaattgatg atggtaataa ttcaaaacca ctgtcacctg gttggacgga ccaaactgcg    1140

tataacgcgt ttggaatcac tacagggatg tttaatacca ctacaatgga tgatgtatat    1200

aactatctat tcgatgatga agataccccca ccaaacccaa aaaagaggg tgggtcgaat    1260

caaacaagtt tgtacaaaaa agctgaacga gaaacgtaaa atgatataaa tatcaatata    1320

ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca acatatccag    1380

tcactatggc ggccgctaag ttggcagcat cacccgacgc actttgcgcc gaataaatac    1440

ctgtgacgga agatcacttc gcagaataaa taaatcctgg tgtccctgtt gataccggga    1500

agccctgggc caacttttgg cgaaaatgag acgttgatcg gcacgtaaga ggttccaact    1560

ttcaccataa tgaaataaga tcactaccgg gcgtattttt tgagttatcg agattttcag    1620

gagctaagga agctaaaatg gagaaaaaaa tcactggata taccaccgtt gatatatccc    1680

aatggcatcg taaagaacat tttgaggcat ttcagtcagt tgctcaatgt acctataacc    1740

agaccgttca gctggatatt acggcctttt taaagaccgt aaagaaaaat aagcacaagt    1800

tttatccggc ctttattcac attcttgccc gcctgatgaa tgctcatccg gaattccgta    1860

tggcaatgaa agacggtgag ctggtgatat gggatagtgt tcacccttgt tacaccgttt    1920

tccatgagca aactgaaacg ttttcatcgc tctggagtga ataccacgac gatttccggc    1980

agtttctaca catatattcg caagatgtgg cgtgttacgg tgaaaacctg gcctatttcc    2040

ctaaagggtt tattgagaat atgttttttcg tctcagccaa tccctgggtg agtttcacca    2100

gttttgattt aaacgtggcc aatatggaca acttcttcgc ccccgttttc accatgggca    2160

aatattatac gcaaggcgac aaggtgctga tgccgctggc gattcaggtt catcatgccg    2220

tctgtgatgg cttccatgtc ggcagaatgc ttaatgaatt acaacagtac tgcgatgagt    2280
```

```
ggcagggcgg ggcgtaatct agaggatccg gcttactaaa agccagataa cagtatgcgt  2340

atttgcgcgc tgatttttgc ggtataagaa tatatactga tatgtatacc cgaagtatgt  2400

caaaaagagg tgtgctatga agcagcgtat tacagtgaca gttgacagcg acagctatca  2460

gttgctcaag gcatatatga tgtcaatatc tccggtctgg taagcacaac catgcagaat  2520

gaagcccgtc gtctgcgtgc cgaacgctgg aaagcggaaa atcaggaagg gatggctgag  2580

gtcgcccggt ttattgaaat gaacggctct tttgctgacg agaacaggga ctggtgaaat  2640

gcagtttaag gtttacacct ataaaagaga gagccgttat cgtctgtttg tggatgtaca  2700

gagtgatatt attgacacgc ccgggcgacg gatggtgatc cccctggcca gtgcacgtct  2760

gctgtcagat aaagtctccc gtgaacttta cccggtggtg catatcgggg atgaaagctg  2820

gcgcatgatg accaccgata tggccagtgt gccggtctcc gttatcgggg aagaagtggc  2880

tgatctcagc caccgcgaaa atgacatcaa aaacgccatt aacctgatgt tctggggaat  2940

ataaatgtca ggctccctta tacacagcca gtctgcaggt cgaccatagt gactggatat  3000

gttgtgtttt acagtattat gtagtctgtt ttttatgcaa aatctaattt aatatattga  3060

tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtggtt tgatggccgc  3120

taagtaagta agacgtcgag ctctaagtaa gtaacggccg ccaccgcggt ggagctttgg  3180

acttcttcgc cagaggtttg gtcaagtctc caatcaaggt tgtcggcttg tctaccttgc  3240

cagaaattta cgaaagatg gaaaagggtc aaatcgttgg tagatacgtt gttgacactt  3300

ctaaataagc gaatttctta tgatttatga tttttattat taaataagtt ataaaaaaaa  3360

taagtgtata caaattttaa agtgactctt aggttttaaa acgaaaattc ttattcttga  3420

gtaactcttt cctgtaggtc aggttgcttt ctcaggtata gcatgaggtc gctcttattg  3480

accacacctc taccggcatg ccgagcaaat gcctgcaaat cgctccccat ttcacccaat  3540

tgtagatatg ctaactccag caatgagttg atgaatctcg gtgtgtattt tatgtcctca  3600

gaggacaata cctgttgtaa tcgttcttcc acacggatcc caattcgccc tatagtgagt  3660

cgtattacaa ttcactggcc gtcgttttac aacgtcgtga ctgggaaaac cctggcgtta  3720

cccaacttaa tcgccttgca gcacatcccc ctttcgccag ctggcgtaat agcgaagagg  3780

cccgcaccga tcgcccttcc caacagttgc gcagcctgaa tggcgaatgg acgcgccctg  3840

tagcggcgca ttaagcgcgg cgggtgtggt ggttacgcgc agcgtgaccg ctacacttgc  3900

cagcgcccta gcgcccgctc ctttcgcttt cttcccttcc tttctcgcca cgttcgccgg  3960

ctttccccgt caagctctaa atcggggggct ccctttaggg ttccgattta gtgctttacg  4020

gcacctcgac cccaaaaaac ttgattaggg tgatggttca cgtagtgggc catcgccctg  4080

atagacggtt tttcgccctt tgacgttgga gtccacgttc tttaatagtg gactcttgtt  4140
```

```
ccaaactgga acaacactca accctatctc ggtctattct tttgatttat aagggatttt   4200

gccgatttcg gcctattggt taaaaaatga gctgatttaa caaaaattta acgcgaattt   4260

taacaaaata ttaacgttta caatttcctg atgcggtatt ttctccttac gcatctgtgc   4320

ggtatttcac accgcaggca agtgcacaaa caatacttaa ataaatacta ctcagtaata   4380

acctatttct tagcattttt gacgaaattt gctattttgt tagagtcttt tacaccattt   4440

gtctccacac ctccgcttac atcaacacca ataacgccat ttaatctaag cgcatcacca   4500

acattttctg gcgtcagtcc accagctaac ataaaatgta agctttcggg gctctcttgc   4560

cttccaaccc agtcagaaat cgagttccaa tccaaaagtt cacctgtccc acctgcttct   4620

gaatcaaaca agggaataaa cgaatgaggt ttctgtgaag ctgcactgag tagtatgttg   4680

cagtcttttg gaaatacgag tcttttaata actggcaaac cgaggaactc ttggtattct   4740

tgccacgact catctccatg cagttggacg atatcaatgc cgtaatcatt gaccagagcc   4800

aaaacatcct ccttaggttg attacgaaac acgccaacca agtatttcgg agtgcctgaa   4860

ctatttttat atgcttttac aagacttgaa attttccttg caataaccgg gtcaattgtt   4920

ctctttctat tgggcacaca tataataccc agcaagtcag catcggaatc tagagcacat   4980

tctgcggcct ctgtgctctg caagccgcaa actttcacca atggaccaga actacctgtg   5040

aaattaataa cagacatact ccaagctgcc tttgtgtgct taatcacgta tactcacgtg   5100

ctcaatagtc accaatgccc tccctcttgg ccctctcctt ttcttttttc gaccgaatta   5160

attcttaatc ggcaaaaaaa gaaaagctcc ggatcaagat tgtacgtaag gtgacaagct   5220

atttttcaat aaagaatatc ttccactact gccatctggc gtcataactg caaagtacac   5280

atatattacg atgctgtcta ttaaatgctt cctatattat atatatagta atgtcgttta   5340

tggtgcactc tcagtacaat ctgctctgat gccgcatagt taagccagcc ccgacacccg   5400

ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc cggcatccgc ttacagacaa   5460

gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt caccgtcatc accgaaacgc   5520

gcgagacgaa agggcctcgt gatacgccta ttttttatagg ttaatgtcat gataataatg   5580

gtttcttagg acggatcgct tgcctgtaac ttacacgcgc ctcgtatctt ttaatgatgg   5640

aataatttgg gaatttactc tgtgtttatt tatttttatg ttttgtattt ggattttaga   5700

aagtaaataa agaaggtaga agagttacgg aatgaagaaa aaaaaataaa caaaggttta   5760

aaaaatttca acaaaaagcg tactttacat atatatttat tagacaagaa aagcagatta   5820

aatagatata cattcgatta acgataagta aaatgtaaaa tcacaggatt ttcgtgtgtg   5880

gtcttctaca cagacaagat gaaacaattc ggcattaata cctgagagca ggaagagcaa   5940

gataaaaggt agtatttgtt ggcgatcccc ctagagtctt ttacatcttc ggaaaacaaa   6000
```

```
aactattttt tctttaattt cttttttac tttctatttt taatttatat atttatatta    6060

aaaaatttaa attataatta tttttatagc acgtgatgaa aaggacccag gtggcacttt    6120

tcggggaaat gtgcgcggaa cccctatttg tttatttttc taaatacatt caaatatgta    6180

tccgctcatg agacaataac cctgataaat gcttcaataa tattgaaaaa ggaagagtat    6240

gagtattcaa catttccgtg tcgcccttat tccctttttt gcggcatttt gccttcctgt    6300

ttttgctcac ccagaaacgc tggtgaaagt aaaagatgct gaagatcagt tgggtgcacg    6360

agtgggttac atcgaactgg atctcaacag cggtaagatc cttgagagtt ttcgccccga    6420

agaacgtttt ccaatgatga gcactttтaa agttctgcta tgtggcgcgg tattatcccg    6480

tattgacgcc gggcaagagc aactcggtcg ccgcatacac tattctcaga atgacttggt    6540

tgagtactca ccagtcacag aaaagcatct tacggatggc atgacagtaa gagaattatg    6600

cagtgctgcc ataaccatga gtgataacac tgcggccaac ttacttctga caacgatcgg    6660

aggaccgaag gagctaaccg cttttttttca caacatgggg gatcatgtaa ctcgccttga    6720

tcgttgggaa ccggagctga atgaagccat accaaacgac gagcgtgaca ccacgatgcc    6780

tgtagcaatg gcaacaacgt tgcgcaaact attaactggc gaactactta ctctagcttc    6840

ccggcaacaa ttaatagact ggatggaggc ggataaagtt gcaggaccac ttctgcgctc    6900

ggcccttccg gctggctggt ttattgctga taaatctgga gccggtgagc gtgggtctcg    6960

cggtatcatt gcagcactgg ggccagatgg taagccctcc cgtatcgtag ttatctacac    7020

gacgggcagt caggcaacta tggatgaacg aaatagacag atcgctgaga taggtgcctc    7080

actgattaag cattggtaac tgtcagacca agtttactca tatatacttt agattgattt    7140

aaaacttcat ttttaattta aaaggatcta ggtgaagatc ctttttgata atctcatgac    7200

caaaatccct taacgtgagt tttcgttcca ctgagcgtca gaccccgtag aaaagatcaa    7260

aggatcttct tgagatcctt tttttctgcg cgtaatctgc tgcttgcaaa caaaaaaacc    7320

accgctacca gcggtggttt gtttgccgga tcaagagcta ccaactcttt ttccgaaggt    7380

aactggcttc agcagagcgc agataccaaa tactgtcctt ctagtgtagc cgtagttagg    7440

ccaccacttc aagaactctg tagcaccgcc tacatacctc gctctgctaa tcctgttacc    7500

agtggctgct gccagtggcg ataagtcgtg tcttaccggg ttggactcaa gacgatagtt    7560

accggataag gcgcagcggt cgggctgaac ggggggttcg tgcacacagc ccagcttgga    7620

gcgaacgacc tacaccgaac tgagatacct acagcgtgag cattgagaaa gcgccacgct    7680

tcccgaaggg agaaaggcgg acaggtatcc ggtaagcggc agggtcggaa caggagagcg    7740

cacgagggag cttccagggg ggaacgcctg gtatctttat agtcctgtcg gtttcgcca    7800

cctctgactt gagcgtcgat ttttgtgatg ctcgtcaggg gggccgagcc tatggaaaaa    7860
```

```
cgccagcaac gcggcctttt tacggttcct ggccttttgc tggccttttg ctcacatgtt    7920

ctttcctgcg ttatcccctg attctgtgga taaccgtatt accgcctttg agtgagctga    7980

taccgctcgc cgcagccgaa cgaccgagcg cagcgagtca gtgagcgagg aagcggaaga    8040

gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca    8100

cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttacct    8160

cactcattag gcaccccagg ctttacactt tatgcttccg gctcctatgt tgtgtggaat    8220

tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg ccaagctcgg    8280

aattaaccct cactaaaggg aacaaaagct gggtaccggg ccccccctcg agatccggga    8340

tcgaagaaat gatggtaaat gaaataggaa atcaaggagc atgaaggcaa aagacaaata    8400

taagggtcga acgaaaaata aagtgaaaag tgttgatatg atgtatttgg ctttgcggcg    8460

ccgaaaaaac gagtttacgc aattgcacaa tcatgctgac tctgtggcgg acccgcgctc    8520

ttgccggccc ggcgataacg ctgggcgtga ggctgtgccc ggcggagttt tttgcgcctg    8580

cattttccaa ggtttaccct gcgctaaggg gcgagattgg agaagcaata agaatgccgg    8640

ttggggttgc gatgatgacg accacgacaa ctggtgtcat tatttaagtt gccgaaagaa    8700

cctgagtgca tttgcaacat gagtatacta gaagaatgag ccaagacttg cgagacgcga    8760

gtttgccggt ggtgcgaaca atagagcgac catgaccttg aaggtgagac gcgcataacc    8820

gctagagtac tttgaagagg aaacagcaat agggttgcta ccagtataaa tagacaggta    8880

catacaacac tggaaatggt tgtctgtttg agtacgcttt caa    8923
```

<210> 151

<211> 6264

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST23

<220>

<221> gene

<222> (161)..(285)

<223> attR1

<220>

```
<221>  gene

<222>  (394)..(1053)

<223>  CmR


<220>

<221>  gene

<222>  (1173)..(1257)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (1395)..(1700)

<223>  ccdB


<220>

<221>  gene

<222>  (1741)..(1865)

<223>  attR2


<220>

<221>  gene

<222>  (1883)..(1911)

<223>  his6


<220>

<221>  gene

<222>  (2574)..(3434)

<223>  ampR


<220>

<221>  gene
```

<222>    (3583)..(4222)

<223>    ori


<400>   151

```
tcttccccat cggtgatgtc ggcgatatag gcgccagcaa ccgcacctgt ggcgccggtg    60

atgccggcca cgatgcgtcc ggcgtagagg atcgagatct cgatcccgcg aaattaatac   120

gactcactat agggagacca caacggtttc cctctagatc acaagtttgt acaaaaaagc   180

tgaacgagaa acgtaaaatg atataaatat caatatatta aattagattt tgcataaaaa   240

acagactaca taatactgta aaacacaaca tatccagtca ctatggcggc cgcattaggc   300

accccaggct ttacacttta tgcttccggc tcgtataatg tgtggatttt gagttaggat   360

ccggcgagat tttcaggagc taaggaagct aaaatggaga aaaaaatcac tggatatacc   420

accgttgata tatcccaatg gcatcgtaaa gaacattttg aggcatttca gtcagttgct   480

caatgtacct ataaccagac cgttcagctg gatattacgg cctttttaaa gaccgtaaag   540

aaaaataagc acaagtttta tccggccttt attcacattc ttgcccgcct gatgaatgct   600

catccggaat tccgtatggc aatgaaagac ggtgagctgg tgatatggga tagtgttcac   660

ccttgttaca ccgttttcca tgagcaaact gaaacgtttt catcgctctg gagtgaatac   720

cacgacgatt ccggcagttt ctacacata tattcgcaag atgtggcgtg ttacggtgaa   780

aacctggcct atttccctaa agggtttatt gagaatatgt ttttcgtctc agccaatccc   840

tgggtgagtt tcaccagttt tgatttaaac gtggccaata tggacaactt cttcgccccc   900

gttttcacca tgggcaaata ttatacgcaa ggcgacaagg tgctgatgcc gctggcgatt   960

caggttcatc atgccgtctg tgatggcttc catgtcggca gaatgcttaa tgaattacaa  1020

cagtactgcg atgagtggca gggcggggcg taaacgcgtg gatccggctt actaaaagcc  1080

agataacagt atgcgtattt gcgcgctgat ttttgcggta taagaatata tactgatatg  1140

tatacccgaa gtatgtcaaa aagaggtgtg ctatgaagca gcgtattaca gtgacagttg  1200

acagcgacag ctatcagttg ctcaaggcat atatgatgtc aatatctccg gtctggtaag  1260

cacaaccatg cagaatgaag cccgtcgtct gcgtgccgaa cgctggaaag cggaaaatca  1320

ggaagggatg gctgaggtcg cccggtttat tgaaatgaac ggctcttttg ctgacgagaa  1380

cagggactgg tgaaatgcag tttaaggttt acacctataa aagagagagc cgttatcgtc  1440

tgtttgtgga tgtacagagt gatattattg acacgcccgg gcgacggatg gtgatcccccc 1500

tggccagtgc acgtctgctg tcagataaag tctcccgtga actttacccg gtggtgcata  1560

tcggggatga aagctggcgc atgatgacca ccgatatggc cagtgtgccg gtctccgtta  1620

tcggggaaga agtggctgat ctcagccacc gcgaaaatga catcaaaaac gccattaacc  1680
```

```
tgatgttctg gggaatataa atgtcaggct cccttataca cagccagtct gcaggtcgac   1740

catagtgact ggatatgttg tgttttacag tattatgtag tctgtttttt atgcaaaatc   1800

taatttaata tattgatatt tatatcattt tacgtttctc gttcagcttt cttgtacaaa   1860

gtggtgatta tgtcgtacta ccatcaccat caccatcacc tcgatgagca ataactagca   1920

taaccccttg gggcctctaa acgggtcttg aggggttttt tgctgaaagg aggaactata   1980

tccggatatc cacaggacgg gtgtggtcgc catgatcgcg tagtcgatag tggctccaag   2040

tagcgaagcg agcaggactg ggcggcggcc aaagcggtcg acagtgctc cgagaacggg   2100

tgcgcataga aattgcatca acgcatatag cgctagcagc acgccatagt gactggcgat   2160

gctgtcggaa tggacgatat cccgcaagag gcccggcagt accggcataa ccaagcctat   2220

gcctacagca tccagggtga cggtgccgag gatgacgatg agcgcattgt tagatttcat   2280

acacggtgcc tgactgcgtt agcaatttaa ctgtgataaa ctaccgcatt aaagcttatc   2340

gatgataagc tgtcaaacat gagaattctt gaagacgaaa gggcctcgtg atacgcctat   2400

ttttataggt taatgtcatg ataataatgg tttcttagac gtcaggtggc acttttcggg   2460

gaaatgtgcg cggaacccct atttgtttat ttttctaaat acattcaaat atgtatccgc   2520

tcatgagaca ataaccctga taaatgcttc aataatattg aaaaaggaag agtatgagta   2580

ttcaacattt ccgtgtcgcc cttattccct tttttgcggc attttgcctt cctgtttttg   2640

ctcacccaga aacgctggtg aaagtaaaag atgctgaaga tcagttgggt gcacgagtgg   2700

gttacatcga actggatctc aacagcggta agatccttga gagttttcgc cccgaagaac   2760

gttttccaat gatgagcact tttaaagttc tgctatgtgg cgcggtatta tcccgtgttg   2820

acgccgggca agagcaactc ggtcgccgca tacactattc tcagaatgac ttggttgagt   2880

actcaccagt cacagaaaag catcttacgg atggcatgac agtaagagaa ttatgcagtg   2940

ctgccataac catgagtgat aacactgcgg ccaacttact tctgacaacg atcggaggac   3000

cgaaggagct aaccgctttt ttgcacaaca tggggggatca tgtaactcgc cttgatcgtt   3060

gggaaccgga gctgaatgaa gccataccaa acgacgagcg tgacaccacg atgcctgcag   3120

caatggcaac aacgttgcgc aaactattaa ctggcgaact acttactcta gcttcccggc   3180

aacaattaat agactggatg gaggcggata agttgcagg accacttctg cgctcggccc   3240

ttccggctgg ctggtttatt gctgataaat ctggagccgg tgagcgtggg tctcgcggta   3300

tcattgcagc actggggcca gatggtaagc cctcccgtat cgtagttatc tacacgacgg   3360

ggagtcaggc aactatggat gaacgaaata gacagatcgc tgagataggt gcctcactga   3420

ttaagcattg gtaactgtca gaccaagttt actcatatat actttagatt gatttaaaac   3480

ttcattttta atttaaaagg atctaggtga agatcctttt tgataatctc atgaccaaaa   3540
```

```
tcccttaacg tgagttttcg ttccactgag cgtcagaccc cgtagaaaag atcaaaggat   3600

cttcttgaga tcctttttt ctgcgcgtaa tctgctgctt gcaaacaaaa aaaccaccgc   3660

taccagcggt ggtttgtttg ccggatcaag agctaccaac tcttttccg aaggtaactg   3720

gcttcagcag agcgcagata ccaaatactg tccttctagt gtagccgtag ttaggccacc   3780

acttcaagaa ctctgtagca ccgcctacat acctcgctct gctaatcctg ttaccagtgg   3840

ctgctgccag tggcgataag tcgtgtctta ccgggttgga ctcaagacga tagttaccgg   3900

ataaggcgca gcggtcgggc tgaacggggg gttcgtgcac acagcccagc ttggagcgaa   3960

cgacctacac cgaactgaga tacctacagc gtgagctatg agaaagcgcc acgcttcccg   4020

aagggagaaa ggcggacagg tatccggtaa gcggcagggt cggaacagga gagcgcacga   4080

gggagcttcc aggggggaaac gcctggtatc tttatagtcc tgtcgggttt cgccacctct   4140

gacttgagcg tcgattttg tgatgctcgt cagggggcg gagcctatgg aaaaacgcca   4200

gcaacgcggc ctttttacgg ttcctggcct tttgctggcc ttttgctcac atgttctttc   4260

ctgcgttatc ccctgattct gtggataacc gtattaccgc ctttgagtga gctgataccg   4320

ctcgccgcag ccgaacgacc gagcgcagcg agtcagtgag cgaggaagcg gaagagcgcc   4380

tgatgcggta ttttctcctt acgcatctgt gcggtatttc acaccgcata tatggtgcac   4440

tctcagtaca atctgctctg atgccgcata gttaagccag tatacactcc gctatcgcta   4500

cgtgactggg tcatggctgc gccccgacac ccgccaacac ccgctgacgc gccctgacgg   4560

gcttgtctgc tcccggcatc cgcttacaga caagctgtga ccgtctccgg gagctgcatg   4620

tgtcagaggt tttcaccgtc atcaccgaaa cgcgcgaggc agctgcggta aagctcatca   4680

gcgtggtcgt gaagcgattc acagatgtct gcctgttcat ccgcgtccag ctcgttgagt   4740

ttctccagaa gcgttaatgt ctggcttctg ataaagcggg ccatgttaag ggcggttttt   4800

tcctgtttgg tcactgatgc ctccgtgtaa gggggatttc tgttcatggg ggtaatgata   4860

ccgatgaaac gagagaggat gctcacgata cgggttactg atgatgaaca tgcccggtta   4920

ctggaacgtt gtgagggtaa acaactggcg gtatggatgc ggcgggacca gagaaaaatc   4980

actcagggtc aatgccagcg cttcgttaat acagatgtag gtgttccaca gggtagccag   5040

cagcatcctg cgatgcagat ccggaacata atggtgcagg cgctgactt ccgcgtttcc   5100

agactttacg aaacacggaa accgaagacc attcatgttg ttgctcaggt cgcagacgtt   5160

ttgcagcagc agtcgcttca cgttcgctcg cgtatcggtg attcattctg ctaaccagta   5220

aggcaacccc gccagcctag ccgggtcctc aacgacagga gcacgatcat gcgcacccgt   5280

ggccaggacc caacgctgcc cgagatgcgc cgcgtgcggc tgctggagat ggcggacgcg   5340

atggatatgt tctgccaagg gttggtttgc gcattcacag ttctccgcaa gaattgattg   5400
```

```
gctccaattc ttggagtggt gaatccgtta gcgaggtgcc gccggcttcc attcaggtcg    5460

aggtggcccg gctccatgca ccgcgacgca acgcggggag gcagacaagg tatagggcgg    5520

cgcctacaat ccatgccaac ccgttccatg tgctcgccga ggcggcataa atcgccgtga    5580

cgatcagcgg tccagtgatc gaagttaggc tggtaagagc cgcgagcgat ccttgaagct    5640

gtccctgatg gtcgtcatct acctgcctgg acagcatggc ctgcaacgcg ggcatcccga    5700

tgccgccgga agcgagaaga atcataatgg ggaaggccat ccagcctcgc gtcgcgaacg    5760

ccagcaagac gtagcccagc gcgtcggccg ccatgccggc gataatggcc tgcttctcgc    5820

cgaaacgttt ggtggcggga ccagtgacga aggcttgagc gagggcgtgc aagattccga    5880

ataccgcaag cgacaggccg atcatcgtcg cgctccagcg aaagcggtcc tcgccgaaaa    5940

tgacccagag cgctgccggc acctgtccta cgagttgcat gataaagaag acagtcataa    6000

gtgcggcgac gatagtcatg ccccgcgccc accggaagga gctgactggg ttgaaggctc    6060

tcaagggcat cggtcgatcg acgctctccc ttatgcgact cctgcattag gaagcagccc    6120

agtagtaggt tgaggccgtt gagcaccgcc gccgcaagga atggtgcatg caaggagatg    6180

gcgcccaaca gtccccccggc cacggggcct gccaccatac ccacgccgaa acaagcgctc    6240

atgagcccga agtggcgagc ccga                                          6264
```

<210> 152

<211> 6961

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST24

<220>

<221> gene

<222> (71)..(195)

<223> attR1


<220>

<221> gene

<222> (304)..(963)

<223> CmR

<220>

<221>  gene

<222>  (1083)..(1167)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (1305)..(1610)

<223>  ccdB


<220>

<221>  gene

<222>  (1651)..(1775)

<223>  attR2


<220>

<221>  gene

<222>  (1783)..(2451)

<223>  GST


<220>

<221>  gene

<222>  (3181)..(4041)

<223>  ampR


<220>

<221>  gene

<222>  (4190)..(4829)

<223>  ori

<400>  152
atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc      60

cctctagatc acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat     120

caatatatta aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca     180

tatccagtca ctatggcggc cgcattaggc accccaggct ttacacttta tgcttccggc     240

tcgtataatg tgtggatttt gagttaggat ccggcgagat tttcaggagc taaggaagct     300

aaaatggaga aaaaaatcac tggatatacc accgttgata tatcccaatg gcatcgtaaa     360

gaacattttg aggcatttca gtcagttgct caatgtacct ataaccagac cgttcagctg     420

gatattacgg cctttttaaa gaccgtaaag aaaaataagc acaagtttta tccggccttt     480

attcacattc ttgcccgcct gatgaatgct catccggaat tccgtatggc aatgaaagac     540

ggtgagctgg tgatatggga tagtgttcac ccttgttaca ccgttttcca tgagcaaact     600

gaaacgtttt catcgctctg gagtgaatac cacgacgatt ccggcagtt tctacacata     660

tattcgcaag atgtggcgtg ttacggtgaa aacctggcct atttccctaa agggtttatt     720

gagaatatgt ttttcgtctc agccaatccc tgggtgagtt tcaccagttt tgatttaaac     780

gtggccaata tggacaactt cttcgccccc gttttcacca tgggcaaata ttatacgcaa     840

ggcgacaagg tgctgatgcc gctggcgatt caggttcatc atgccgtctg tgatggcttc     900

catgtcggca gaatgcttaa tgaattacaa cagtactgcg atgagtggca gggcggggcg     960

taaacgcgtg gatccggctt actaaaagcc agataacagt atgcgtattt gcgcgctgat    1020

ttttgcggta taagaatata tactgatatg tatacccgaa gtatgtcaaa aagaggtgtg    1080

ctatgaagca gcgtattaca gtgacagttg acagcgacag ctatcagttg ctcaaggcat    1140

atatgatgtc aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct    1200

gcgtgccgaa cgctggaaag cggaaaatca ggaagggatg gctgaggtcg cccggtttat    1260

tgaaatgaac ggctcttttg ctgacgagaa cagggactgg tgaaatgcag tttaaggttt    1320

acacctataa aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg    1380

acacgcccgg gcgacggatg gtgatccccc tggccagtgc acgtctgctg tcagataaag    1440

tctcccgtga actttacccg gtggtgcata tcggggatga aagctggcgc atgatgacca    1500

ccgatatggc cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc    1560

gcgaaaatga catcaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct    1620

cccttataca cagccagtct gcaggtcgac catagtgact ggatatgttg tgttttacag    1680

tattatgtag tctgtttttt atgcaaaatc taatttaata tattgatatt tatatcattt    1740

tacgtttctc gttcagcttt cttgtacaaa gtggtgatta tgtcccctat actaggttat    1800

tggaaaatta agggccttgt gcaacccact cgacttcttt tggaatatct tgaagaaaaa    1860

```
tatgaagagc atttgtatga gcgcgatgaa ggtgataaat ggcgaaacaa aaagtttgaa   1920

ttgggtttgg agtttcccaa tcttccttat tatattgatg gtgatgttaa attaacacag   1980

tctatggcca tcatacgtta tatagctgac aagcacaaca tgttgggtgg ttgtccaaaa   2040

gagcgtgcag agatttcaat gcttgaagga gcggttttgg atattagata cggtgtttcg   2100

agaattgcat atagtaaaga ctttgaaact ctcaaagttg attttcttag caagctacct   2160

gaaatgctga aaatgttcga agatcgttta tgtcataaaa catatttaaa tggtgatcat   2220

gtaacccatc ctgacttcat gttgtatgac gctcttgatg ttgtttttata catggaccca   2280

atgtgcctgg atgcgttccc aaaattagtt tgttttaaaa aacgtattga agctatccca   2340

caaattgata agtacttgaa atccagcaag tatatagcat ggcctttgca gggctggcaa   2400

gccacgtttg gtggtggcga ccatcctcca aaatcggatc tggttccgcg tccatgggga   2460

tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg ctgagcaata   2520

actagcataa ccccttgggg cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg   2580

aactatatcc ggatatccac aggacgggtg tggtcgccat gatcgcgtag tcgatagtgg   2640

ctccaagtag cgaagcgagc aggactgggc ggcggccaaa gcggtcggac agtgctccga   2700

gaacgggtgc gcatagaaat tgcatcaacg catatagcgc tagcagcacg ccatagtgac   2760

tggcgatgct gtcggaatgg acgatatccc gcaagaggcc cggcagtacc ggcataacca   2820

agcctatgcc tacagcatcc agggtgacgg tgccgaggat gacgatgagc gcattgttag   2880

atttcataca cggtgcctga ctgcgttagc aatttaactg tgataaacta ccgcattaaa   2940

gcttatcgat gataagctgt caaacatgag aattcttgaa gacgaaaggg cctcgtgata   3000

cgcctatttt tataggttaa tgtcatgata ataatggttt cttagacgtc aggtggcact   3060

tttcggggaa atgtgcgcgg aacccctatt tgtttatttt tctaaataca ttcaaatatg   3120

tatccgctca tgagacaata accctgataa atgcttcaat aatattgaaa aaggaagagt   3180

atgagtattc aacatttccg tgtcgccctt attcccttttt ttgcggcatt ttgccttcct   3240

gtttttgctc acccagaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca   3300

cgagtgggtt acatcgaact ggatctcaac agcggtaaga tccttgagag ttttcgcccc   3360

gaagaacgtt ttccaatgat gagcactttt aaagttctgc tatgtggcgc ggtattatcc   3420

cgtgttgacg ccgggcaaga gcaactcggt cgccgcatac actattctca gaatgacttg   3480

gttgagtact caccagtcac agaaaagcat cttacggatg gcatgacagt aagagaatta   3540

tgcagtgctg ccataaccat gagtgataac actgcggcca acttacttct gacaacgatc   3600

ggaggaccga aggagctaac cgcttttttg cacaacatgg gggatcatgt aactcgcctt   3660

gatcgttggg aaccggagct gaatgaagcc ataccaaacg acgagcgtga caccacgatg   3720
```

```
cctgcagcaa tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct   3780

tcccggcaac aattaataga ctggatggag gcggataaag ttgcaggacc acttctgcgc   3840

tcggcccttc cggctggctg gtttattgct gataaatctg gagccggtga gcgtgggtct   3900

cgcggtatca ttgcagcact ggggccagat ggtaagccct cccgtatcgt agttatctac   3960

acgacgggga gtcaggcaac tatggatgaa cgaaatagac agatcgctga gataggtgcc   4020

tcactgatta agcattggta actgtcagac caagtttact catatatact ttagattgat   4080

ttaaaacttc atttttaatt taaaaggatc taggtgaaga tcctttttga taatctcatg   4140

accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagaccccgt agaaaagatc   4200

aaaggatctt cttgagatcc tttttttctg cgcgtaatct gctgcttgca aacaaaaaa   4260

ccaccgctac cagcggtggt ttgtttgccg gatcaagagc taccaactct ttttccgaag   4320

gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgta gccgtagtta   4380

ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct aatcctgtta   4440

ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg ggttggactc aagacgatag   4500

ttaccggata aggcgcagcg gtcgggctga cgggggggtt cgtgcacaca gcccagcttg   4560

gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg   4620

cttcccgaag ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg aacaggagag   4680

cgcacgaggg agcttccagg gggaaacgcc tggtatcttt atagtcctgt cgggtttcgc   4740

cacctctgac ttgagcgtcg atttttgtga tgctcgtcag ggggcggag cctatggaaa   4800

aacgccagca acgcggcctt tttacggttc ctggcctttt gctggccttt tgctcacatg   4860

ttctttcctg cgttatcccc tgattctgtg ataaccgta ttaccgcctt tgagtgagct   4920

gataccgctc gccgcagccg aacgaccgag cgcagcgagt cagtgagcga ggaagcggaa   4980

gagcgcctga tgcggtattt tctccttacg catctgtgcg gtatttcaca ccgcatatat   5040

ggtgcactct cagtacaatc tgctctgatg ccgcatagtt aagccagtat acactccgct   5100

atcgctacgt gactgggtca tggctgcgcc ccgacacccg ccaacacccg ctgacgcgcc   5160

ctgacgggct tgtctgctcc cggcatccgc ttacagacaa gctgtgaccg tctccgggag   5220

ctgcatgtgt cagaggtttt caccgtcatc accgaaacgc gcgaggcagc tgcggtaaag   5280

ctcatcagcg tggtcgtgaa gcgattcaca gatgtctgcc tgttcatccg cgtccagctc   5340

gttgagtttc tccagaagcg ttaatgtctg gcttctgata aagcgggcca tgttaagggc   5400

ggttttttcc tgtttggtca ctgatgcctc cgtgtaaggg ggatttctgt tcatgggggt   5460

aatgataccg atgaaacgag agaggatgct cacgatacgg gttactgatg atgaacatgc   5520

ccggttactg gaacgttgtg agggtaaaca actggcggta tggatgcggc gggaccagag   5580
```

```
aaaaatcact caggtcaat gccagcgctt cgttaataca gatgtaggtg ttccacaggg    5640

tagccagcag catcctgcga tgcagatccg gaacataatg gtgcagggcg ctgacttccg    5700

cgtttccaga ctttacgaaa cacggaaacc gaagaccatt catgttgttg ctcaggtcgc    5760

agacgttttg cagcagcagt cgcttcacgt tcgctcgcgt atcggtgatt cattctgcta    5820

accagtaagg caaccccgcc agcctagccg ggtcctcaac gacaggagca cgatcatgcg    5880

cacccgtggc caggacccaa cgctgcccga gatgcgccgc gtgcggctgc tggagatggc    5940

ggacgcgatg gatatgttct gccaagggtt ggtttgcgca ttcacagttc tccgcaagaa    6000

ttgattggct ccaattcttg gagtggtgaa tccgttagcg aggtgccgcc ggcttccatt    6060

caggtcgagg tggcccggct ccatgcaccg cgacgcaacg cggggaggca gacaaggtat    6120

agggcggcgc ctacaatcca tgccaacccg ttccatgtgc tcgccgaggc ggcataaatc    6180

gccgtgacga tcagcggtcc agtgatcgaa gttaggctgg taagagccgc gagcgatcct    6240

tgaagctgtc cctgatggtc gtcatctacc tgcctggaca gcatggcctg caacgcgggc    6300

atcccgatgc cgccggaagc gagaagaatc ataatgggga aggccatcca gcctcgcgtc    6360

gcgaacgcca gcaagacgta gcccagcgcg tcggccgcca tgccggcgat aatggcctgc    6420

ttctcgccga aacgtttggt ggcgggacca gtgacgaagg cttgagcgag ggcgtgcaag    6480

attccgaata ccgcaagcga caggccgatc atcgtcgcgc tccagcgaaa gcggtcctcg    6540

ccgaaaatga cccagagcgc tgccggcacc tgtcctacga gttgcatgat aaagaagaca    6600

gtcataagtg cggcgacgat agtcatgccc cgcgcccacc ggaaggagct gactgggttg    6660

aaggctctca agggcatcgg tcgatcgacg ctctccctta tgcgactcct gcattaggaa    6720

gcagcccagt agtaggttga ggccgttgag caccgccgcc gcaaggaatg gtgcatgcaa    6780

ggagatggcg cccaacagtc ccccggccac ggggcctgcc accatcccca cgccgaaaca    6840

agcgctcatg agcccgaagt ggcgagcccg atcttcccca tcggtgatgt cggcgatata    6900

ggcgccagca accgcacctg tggcgccggt gatgccggcc acgatgcgtc cggcgtagag    6960

g                                                                    6961
```

<210> 153

<211> 6652

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST25

<220>

<221> gene

<222> (720)..(844)

<223> attR1


<220>

<221> gene

<222> (953)..(1612)

<223> CmR


<220>

<221> gene

<222> (1732)..(1816)

<223> inactivated ccdA


<220>

<221> gene

<222> (1954)..(2259)

<223> ccdB


<220>

<221> gene

<222> (2300)..(2424)

<223> attR2


<220>

<221> gene

<222> (2432)..(2794)

<223> trx


<400> 153
ccggaagcga gaagaatcat aatggggaag gccatccagc ctcgcgtcgc gaacgccagc       60

```
aagacgtagc ccagcgcgtc ggccgccatg ccggcgataa tggcctgctt ctcgccgaaa   120

cgtttggtgg cgggaccagt gacgaaggct tgagcgaggg cgtgcaagat tccgaatacc   180

gcaagcgaca ggccgatcat cgtcgcgctc cagcgaaagc ggtcctcgcc gaaaatgacc   240

cagagcgctg ccggcacctg tcctacgagt tgcatgataa agaagacagt cataagtgcg   300

gcgacgatag tcatgccccg cgcccaccgg aaggagctga ctgggttgaa ggctctcaag   360

ggcatcggtc gatcgacgct ctcccttatg cgactcctgc attaggaagc agcccagtag   420

taggttgagg ccgttgagca ccgccgccgc aaggaatggt gcatgcaagg agatggcgcc   480

caacagtccc ccggccacgg ggcctgccac catacccacg ccgaaacaag cgctcatgag   540

cccgaagtgg cgagcccgat cttccccatc ggtgatgtcg gcgatatagg cgccagcaac   600

cgcacctgtg gcgccggtga tgccggccac gatgcgtccg gcgtagagga tcgagatctc   660

gatcccgcga aattaatacg actcactata gggagaccac aacggtttcc ctctagatca   720

caagtttgta caaaaaagct gaacgagaaa cgtaaaatga tataaatatc aatatattaa   780

attagatttt gcataaaaaa cagactacat aatactgtaa aacacaacat atccagtcac   840

tatggcggcc gcattaggca ccccaggctt tacactttat gcttccggct cgtataatgt   900

gtggattttg agttaggatc cggcgagatt ttcaggagct aaggaagcta aaatggagaa   960

aaaaatcact ggatatacca ccgttgatat atcccaatgg catcgtaaag aacattttga  1020

ggcatttcag tcagttgctc aatgtaccta taaccagacc gttcagctgg atattacggc  1080

cttttttaaag accgtaaaga aaaataagca caagttttat ccggccttta ttcacattct  1140

tgcccgcctg atgaatgctc atccggaatt ccgtatggca atgaaagacg gtgagctggt  1200

gatatgggat agtgttcacc cttgttacac cgttttccat gagcaaactg aaacgttttc  1260

atcgctctgg agtgaatacc acgacgattt ccggcagttt ctacacatat attcgcaaga  1320

tgtggcgtgt tacggtgaaa acctggccta tttccctaaa gggtttattg agaatatgtt  1380

tttcgtctca gccaatccct gggtgagttt caccagtttt gatttaaacg tggccaatat  1440

ggacaacttc ttcgccccog ttttcaccat gggcaaatat tatacgcaag cgacaaggt  1500

gctgatgccg ctggcgattc aggttcatca tgccgtctgt gatggcttcc atgtcggcag  1560

aatgcttaat gaattacaac agtactgcga tgagtggcag ggcggggcgt aaacgcgtgg  1620

atccggctta ctaaaagcca gataacagta tgcgtatttg cgcgctgatt tttgcggtat  1680

aagaatatat actgatatgt atacccgaag tatgtcaaaa agaggtgtgc tatgaagcag  1740

cgtattacag tgacagttga cagcgacagc tatcagttgc tcaaggcata tatgatgtca  1800

atatctccgg tctggtaagc acaaccatgc agaatgaagc ccgtcgtctg cgtgccgaac  1860

gctggaaagc ggaaaatcag gaagggatgg ctgaggtcgc ccggtttatt gaaatgaacg  1920
```

```
gctctttgc tgacgagaac agggactggt gaaatgcagt ttaaggttta cacctataaa    1980

agagagagcc gttatcgtct gtttgtggat gtacagagtg atattattga cacgcccggg    2040

cgacggatgg tgatccccct ggccagtgca cgtctgctgt cagataaagt ctcccgtgaa    2100

ctttacccgg tggtgcatat cggggatgaa agctggcgca tgatgaccac cgatatggcc    2160

agtgtgccgg tctccgttat cggggaagaa gtggctgatc tcagccaccg cgaaaatgac    2220

atcaaaaacg ccattaacct gatgttctgg ggaatataaa tgtcaggctc ccttatacac    2280

agccagtctg caggtcgacc atagtgactg gatatgttgt gttttacagt attatgtagt    2340

ctgttttta tgcaaaatct aatttaatat attgatattt atatcatttt acgttctcg    2400

ttcagctttc ttgtacaaag tggtgattat gagcgataaa attattcacc tgactgacga    2460

cagttttgac acggatgtac tcaaagcgga cggggcgatc ctcgtcgatt tctgggcaga    2520

gtggtgcggt ccgtgcaaaa tgatcgcccc gattctggat gaaatcgctg acgaatatca    2580

gggcaaactg accgttgcaa aactgaacat cgatcaaaac cctggcactg cgccgaaata    2640

tggcatccgt ggtatcccga ctctgctgct gttcaaaaac ggtgaagtgg cggcaaccaa    2700

agtgggtgca ctgtctaaag gtcagttgaa agagttcctc gacgctaacc tggccggttc    2760

tggttctggt gatgacgatg acaaggtacc cggggatcga tccggctgct aacaaagccc    2820

gaaaggaagc tgagttggct gctgccaccg ctgagcaata actagcataa ccccttgggg    2880

cctctaaacg ggtcttgagg ggttttttgc tgaaaggagg aactatatcc ggatatccac    2940

aggacgggtg tggtcgccat gatcgcgtag tcgatagtgg ctccaagtag cgaagcgagc    3000

aggactgggc ggcggccaaa gcggtcggac agtgctccga aacgggtgc gcatagaaat    3060

tgcatcaacg catatagcgc tagcagcacg ccatagtgac tggcgatgct gtcggaatgg    3120

acgatatccc gcaagaggcc cggcagtacc ggcataacca agcctatgcc tacagcatcc    3180

agggtgacgg tgccgaggat gacgatgagc gcattgttag atttcataca cggtgcctga    3240

ctgcgttagc aatttaactg tgataaacta ccgcattaaa gcttatcgat gataagctgt    3300

caaacatgag aattcttgaa gacgaaaggg cctcgtgata cgcctatttt tataggttaa    3360

tgtcatgata ataatggttt cttagacgtc aggtggcact tttcggggaa atgtgcgcgg    3420

aacccctatt tgtttatttt tctaaataca ttcaaatatg tatccgctca tgagacaata    3480

accctgataa atgcttcaat aatattgaaa aaggaagagt atgagtattc aacatttccg    3540

tgtcgccctt attcccttt ttgcggcatt ttgccttcct gtttttgctc acccagaaac    3600

gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt acatcgaact    3660

ggatctcaac agcggtaaga tccttgagag ttttcgcccc gaagaacgtt ttccaatgat    3720

gagcactttt aaagttctgc tatgtggcgc ggtattatcc cgtgttgacg ccgggcaaga    3780
```

```
gcaactcggt cgccgcatac actattctca gaatgacttg gttgagtact caccagtcac    3840

agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgctg ccataaccat    3900

gagtgataac actgcggcca acttacttct gacaacgatc ggaggaccga aggagctaac    3960

cgcttttttg cacaacatgg gggatcatgt aactcgcctt gatcgttggg aaccggagct    4020

gaatgaagcc ataccaaacg acgagcgtga caccacgatg cctgcagcaa tggcaacaac    4080

gttgcgcaaa ctattaactg gcgaactact tactctagct tcccggcaac aattaataga    4140

ctggatggag gcggataaag ttgcaggacc acttctgcgc tcggcccttc cggctggctg    4200

gtttattgct gataaatctg gagccggtga gcgtgggtct cgcggtatca ttgcagcact    4260

ggggccagat ggtaagccct cccgtatcgt agttatctac acgacgggga gtcaggcaac    4320

tatggatgaa cgaaatagac agatcgctga gataggtgcc tcactgatta agcattggta    4380

actgtcagac caagtttact catatatact ttagattgat ttaaaacttc atttttaatt    4440

taaaaggatc taggtgaaga tcctttttga taatctcatg accaaaatcc cttaacgtga    4500

gttttcgttc cactgagcgt cagaccccgt agaaaagatc aaaggatctt cttgagatcc    4560

ttttttctg cgcgtaatct gctgcttgca acaaaaaaa ccaccgctac cagcggtggt    4620

ttgtttgccg gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc    4680

gcagatacca aatactgtcc ttctagtgta gccgtagtta ggccaccact tcaagaactc    4740

tgtagcaccg cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg    4800

cgataagtcg tgtcttaccg ggttggactc aagacgatag ttaccggata aggcgcagcg    4860

gtcgggctga acggggggtt cgtgcacaca gcccagcttg gagcgaacga cctacaccga    4920

actgagatac ctacagcgtg agctatgaga aagcgccacg cttcccgaag ggagaaaggc    4980

ggacaggtat ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg agcttccagg    5040

gggaaacgcc tggtatcttt atagtcctgt cgggtttcgc cacctctgac ttgagcgtcg    5100

atttttgtga tgctcgtcag ggggcggag cctatggaaa aacgccagca acgcggcctt    5160

tttacggttc ctggcctttt gctggccttt tgctcacatg ttctttcctg cgttatcccc    5220

tgattctgtg gataaccgta ttaccgcctt tgagtgagct gataccgctc gccgcagccg    5280

aacgaccgag cgcagcgagt cagtgagcga ggaagcggaa gagcgcctga tgcggtattt    5340

tctccttacg catctgtgcg gtatttcaca ccgcatatat ggtgcactct cagtacaatc    5400

tgctctgatg ccgcatagtt aagccagtat acactccgct atcgctacgt gactgggtca    5460

tggctgcgcc ccgacacccg ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc    5520

cggcatccgc ttacagacaa gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt    5580

caccgtcatc accgaaacgc gcgaggcagc tgcggtaaag ctcatcagcg tggtcgtgaa    5640
```

```
gcgattcaca gatgtctgcc tgttcatccg cgtccagctc gttgagtttc tccagaagcg    5700

ttaatgtctg gcttctgata aagcgggcca tgttaagggc ggtttttttcc tgtttggtca    5760

ctgatgcctc cgtgtaaggg ggatttctgt tcatgggggt aatgataccg atgaaacgag    5820

agaggatgct cacgatacgg gttactgatg atgaacatgc ccggttactg gaacgttgtg    5880

agggtaaaca actggcggta tggatgcggc gggaccagag aaaaatcact cagggtcaat    5940

gccagcgctt cgttaataca gatgtaggtg ttccacaggg tagccagcag catcctgcga    6000

tgcagatccg gaacataatg gtgcagggcg ctgacttccg cgtttccaga ctttacgaaa    6060

cacggaaacc gaagaccatt catgttgttg ctcaggtcgc agacgttttg cagcagcagt    6120

cgcttcacgt tcgctcgcgt atcggtgatt cattctgcta accagtaagg caaccccgcc    6180

agcctagccg ggtcctcaac gacaggagca cgatcatgcg cacccgtggc caggacccaa    6240

cgctgcccga gatgcgccgc gtgcggctgc tggagatggc ggacgcgatg gatatgttct    6300

gccaagggtt ggtttgcgca ttcacagttc tccgcaagaa ttgattggct ccaattcttg    6360

gagtggtgaa tccgttagcg aggtgccgcc ggcttccatt caggtcgagg tggcccggct    6420

ccatgcaccg cgacgcaacg cggggaggca gacaaggtat agggcggcgc ctacaatcca    6480

tgccaacccg ttccatgtgc tcgccgaggc ggcataaatc gccgtgacga tcagcggtcc    6540

agtgatcgaa gttaggctgg taagagccgc gagcgatcct tgaagctgtc cctgatggtc    6600

gtcatctacc tgcctggaca gcatggcctg caacgcgggc atcccgatgc cg           6652
```

<210> 154

<211> 7481

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST26

<220>

<221> gene

<222> (492)..(509)

<223> his6


<220>

<221> gene

<222>  (519)..(619)

<223>  attR1


<220>

<221>  gene

<222>  (752)..(1411)

<223>  CmR


<220>

<221>  gene

<222>  (1531)..(1615)

<223>  inactivated ccdA


<220>

<221>  gene

<222>  (1753)..(2058)

<223>  ccdB


<220>

<221>  gene

<222>  (2099)..(2223)

<223>  attR2


<220>

<221>  gene

<222>  (2409)..(2771)

<223>  SV40 polyA


<220>

<221>  gene

<222>  (2966)..(3421)

<223> f1 intergenic region


<220>

<221> gene

<222> (3485)..(3903)

<223> SV40 promoter


<220>

<221> gene

<222> (3948)..(4742)

<223> neo


<220>

<221> gene

<222> (4806)..(4854)

<223> polyA


<220>

<221> gene

<222> (5265)..(6125)

<223> Apr


<220>

<221> gene

<222> (5274)..(6913)

<223> ori


<220>

<221> gene

<222> (385)..(7344)

<223> CMV promoter

<400> 154

```
gtaaactgcc  cacttggcag  tacatcaagt  gtatcatatg  ccaagtacgc  cccctattga        60

cgtcaatgac  ggtaaatggc  ccgcctggca  ttatgcccag  tacatgacct  tatgggactt       120

tcctacttgg  cagtacatct  acgtattagt  catcgctatt  accatggtga  tgcggttttg       180

gcagtacatc  aatgggcgtg  gatagcggtt  tgactcacgg  ggatttccaa  gtctccaccc       240

cattgacgtc  aatgggagtt  tgttttggca  ccaaaatcaa  cgggactttc  caaaatgtcg       300

taacaactcc  gccccattga  cgcaaatggg  cggtaggcgt  gtacggtggg  aggtctatat       360

aagcagagct  cgtttagtga  accgtcagat  cgcctggaga  cgccatccac  gctgttttga       420

cctccataga  agacaccggg  accgatccag  cctccggact  ctagcctagg  ccgcggacca       480

tggcgtacta  ccatcaccat  caccatcact  ctagatcaac  aagtttgtac  aaaaaagctg       540

aacgagaaac  gtaaatgat  ataaatatca  atatattaaa  ttagattttg  cataaaaaac       600

agactacata  atactgtaaa  acacaacata  tccagtcact  atggcggccg  cattaggcac       660

cccaggcttt  acactttatg  cttccggctc  gtataatgtg  tggattttga  gttaggatcc       720

ggcgagattt  tcaggagcta  aggaagctaa  aatggagaaa  aaaatcactg  gatataccac       780

cgttgatata  tcccaatggc  atcgtaaaga  acattttgag  gcatttcagt  cagttgctca       840

atgtacctat  aaccagaccg  ttcagctgga  tattacggcc  tttttaaaga  ccgtaaagaa       900

aaataagcac  aagtttttatc  cggcctttat  tcacattctt  gcccgcctga  tgaatgctca       960

tccggaattc  cgtatggcaa  tgaaagacgg  tgagctggtg  atatgggata  gtgttcaccc      1020

ttgttacacc  gttttccatg  agcaaactga  acgttttca  tcgctctgga  gtgaatacca      1080

cgacgatttc  cggcagtttc  tacacatata  ttcgcaagat  gtggcgtgtt  acggtgaaaa      1140

cctggcctat  ttccctaaag  ggtttattga  gaatatgttt  ttcgtctcag  ccaatccctg      1200

ggtgagtttc  accagttttg  atttaaacgt  ggccaatatg  gacaacttct  tcgcccccgt      1260

tttcaccatg  ggcaaatatt  atacgcaagg  cgacaaggtg  ctgatgccgc  tggcgattca      1320

ggttcatcat  gccgtctgtg  atggcttcca  tgtcggcaga  atgcttaatg  aattacaaca      1380

gtactgcgat  gagtggcagg  gcggggcgta  aagatctgga  tccggcttac  taaaagccag      1440

ataacagtat  gcgtatttgc  gcgctgattt  ttgcggtata  agaatatata  ctgatatgta      1500

tacccgaagt  atgtcaaaaa  gaggtgtgct  atgaagcagc  gtattacagt  gacagttgac      1560

agcgacagct  atcagttgct  caaggcatat  atgatgtcaa  tatctccggt  ctggtaagca      1620

caaccatgca  gaatgaagcc  cgtcgtctgc  gtgccgaacg  ctggaaagcg  gaaaatcagg      1680

aagggatggc  tgaggtcgcc  cggtttattg  aaatgaacgg  ctcttttgct  gacgagaaca      1740

gggactggtg  aaatgcagtt  taaggtttac  acctataaaa  gagagagccg  ttatcgtctg      1800
```

```
tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggt gatccccctg    1860

gccagtgcac gtctgctgtc agataaagtc tcccgtgaac tttacccggt ggtgcatatc    1920

ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccgttatc    1980

ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg    2040

atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca    2100

tagtgactgg atatgttgtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta    2160

atttaatata ttgatattta tatcatttta cgtttctcgt tcagctttct tgtacaaagt    2220

ggttgatcgc gtgcatgcga cgtcatagct ctctccctat agtgagtcgt attataagct    2280

aggcactggc cgtcgtttta caacgtcgtg actgggaaaa ctgctagctt gggatctttg    2340

tgaaggaacc ttacttctgt ggtgtgacat aattggacaa actacctaca gagatttaaa    2400

gctctaaggt aaatataaaa tttttaagtg tataatgtgt taaactagct gcatatgctt    2460

gctgcttgag agttttgctt actgagtatg atttatgaaa atattataca caggagctag    2520

tgattctaat tgtttgtgta ttttagattc acagtcccaa ggctcatttc aggcccctca    2580

gtcctcacag tctgttcatg atcataatca gccataccac atttgtagag gttttacttg    2640

ctttaaaaaa cctcccacac ctccccctga acctgaaaca taaaatgaat gcaattgttg    2700

ttgttaactt gtttattgca gcttataatg gttacaaata aagcaatagc atcacaaatt    2760

tcacaaataa agcattтттt tcactgcatt ctagttgtgg tttgtccaaa ctcatcaatg    2820

tatcttatca tgtctggatc gatcctgcat taatgaatcg gccaacgcgc ggggagaggc    2880

ggtttgcgta ttggctggcg taatagcgaa gaggcccgca ccgatcgccc ttcccaacag    2940

ttgcgcagcc tgaatggcga atgggacgcg ccctgtagcg gcgcattaag cgcggcgggt    3000

gtggtggtta cgcgcagcgt gaccgctaca cttgccagcg ccctagcgcc cgctcctttc    3060

gctttcttcc cttcctttct cgccacgttc gccggctttc cccgtcaagc tctaaatcgg    3120

gggctccctt tagggttccg atttagtgct ttacggcacc tcgaccccaa aaaacttgat    3180

tagggtgatg gttcacgtag tgggccatcg ccctgataga cggttttтcg ccctttgacg    3240

ttggagtcca cgttctttaa tagtggactc ttgttccaaa ctggaacaac actcaaccct    3300

atctcggtct attcttttga tttataaggg attttgccga tttcggccta ttggttaaaa    3360

aatgagctga tttaacaaat atttaacgcg aattttaaca aaatattaac gtttacaatt    3420

tcgcctgatg cggtattttc tccttacgca tctgtgcggt atttcacacc gcatacgcgg    3480

atctgcgcag caccatggcc tgaaataacc tctgaaagag gaacttggtt aggtaccttc    3540

tgaggcggaa agaaccagct gtggaatgtg tgtcagttag ggtgtggaaa gtccccaggc    3600

tccccagcag gcagaagtat gcaaagcatg catctcaatt agtcagcaac caggtgtgga    3660
```

```
aagtccccag gctccccagc aggcagaagt atgcaaagca tgcatctcaa ttagtcagca   3720

accatagtcc cgcccctaac tccgcccatc ccgcccctaa ctccgcccag ttccgcccat   3780

tctccgcccc atggctgact aatttttttt atttatgcag aggccgaggc cgcctcggcc   3840

tctgagctat tccagaagta gtgaggaggc ttttttggag gcctaggctt ttgcaaaaag   3900

cttgattctt ctgacacaac agtctcgaac ttaaggctag agccaccatg attgaacaag   3960

atggattgca cgcaggttct ccggccgctt gggtggagag gctattcggc tatgactggg   4020

cacaacagac aatcggctgc tctgatgccg ccgtgttccg gctgtcagcg caggggcgcc   4080

cggttctttt tgtcaagacc gacctgtccg gtgccctgaa tgaactgcag gacgaggcag   4140

cgcggctatc gtggctggcc acgacgggcg ttccttgcgc agctgtgctc gacgttgtca   4200

ctgaagcggg aagggactgg ctgctattgg gcgaagtgcc ggggcaggat ctcctgtcat   4260

ctcaccttgc tcctgccgag aaagtatcca tcatggctga tgcaatgcgg cggctgcata   4320

cgcttgatcc ggctacctgc ccattcgacc accaagcgaa acatcgcatc gagcgagcac   4380

gtactcggat ggaagccggt cttgtcgatc aggatgatct ggacgaagag catcaggggc   4440

tcgcgccagc cgaactgttc gccaggctca aggcgcgcat gcccgacggc gaggatctcg   4500

tcgtgaccca tggcgatgcc tgcttgccga atatcatggt ggaaaatggc cgcttttctg   4560

gattcatcga ctgtggccgg ctgggtgtgg cggaccgcta tcaggacata gcgttggcta   4620

cccgtgatat tgctgaagag cttggcggcg aatgggctga ccgcttcctc gtgctttacg   4680

gtatcgccgc tcccgattcg cagcgcatcg ccttctatcg ccttcttgac gagttcttct   4740

gagcgggact ctggggttcg aaatgaccga ccaagcgacg cccaacctgc catcacgatg   4800

gccgcaataa aatatcttta ttttcattac atctgtgtgt tggttttttg tgtgaatcga   4860

tagcgataag gatccgcgta tggtgcactc tcagtacaat ctgctctgat gccgcatagt   4920

taagccagcc ccgacacccg ccaacacccg ctgacgcgcc ctgacgggct tgtctgctcc   4980

cggcatccgc ttacagacaa gctgtgaccg tctccgggag ctgcatgtgt cagaggtttt   5040

caccgtcatc accgaaacgc gcgagacgaa agggcctcgt gatacgccta ttttttatagg   5100

ttaatgtcat gataataatg gtttcttaga cgtcaggtgg cactttttcgg ggaaatgtgc   5160

gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg ctcatgagac   5220

aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt attcaacatt   5280

tccgtgtcgc ccttattccc ttttttgcgg cattttgcct tcctgttttt gctcacccag   5340

aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg ggttacatcg   5400

aactggatct caacagcggt aagatccttg agagttttcg ccccgaagaa cgttttccaa   5460

tgatgagcac ttttaaagtt ctgctatgtg gcgcggtatt atcccgtatt gacgccgggc   5520
```

```
aagagcaact cggtcgccgc atacactatt ctcagaatga cttggttgag tactcaccag    5580

tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt gctgccataa    5640

ccatgagtga taacactgcg gccaacttac ttctgacaac gatcggagga ccgaaggagc    5700

taaccgcttt tttgcacaac atgggggatc atgtaactcg ccttgatcgt tgggaaccgg    5760

agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta gcaatggcaa    5820

caacgttgcg caaactatta actggcgaac tacttactct agcttcccgg caacaattaa    5880

tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc cttccggctg    5940

gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgcggt atcattgcag    6000

cactggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg gggagtcagg    6060

caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg attaagcatt    6120

ggtaactgtc agaccaagtt tactcatata tactttagat tgatttaaaa cttcattttt    6180

aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaaa atcccttaac    6240

gtgagttttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga tcttcttgag    6300

atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg ctaccagcgg    6360

tggtttgttt gccggatcaa gagctaccaa ctctttttcc gaaggtaact ggcttcagca    6420

gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac cacttcaaga    6480

actctgtagc accgcctaca tacctcgctc tgctaatcct gttaccagtg ctgctgcca     6540

gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg gataaggcgc    6600

agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga acgacctaca    6660

ccgaactgag atacctacag cgtgagcatt gagaaagcgc cacgcttccc gaagggagaa    6720

aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg agggagcttc    6780

caggggggaaa cgcctggtat ctttatagtc ctgtcgggtt cgccacctc tgacttgagc     6840

gtcgattttt gtgatgctcg tcaggggggc ggagcctatg gaaaaacgcc agcaacgcgg    6900

cctttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt cctgcgttat    6960

cccctgattc tgtggataac cgtattaccg cctttgagtg agctgatacc gctcgccgca    7020

gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc ccaatacgca    7080

aaccgcctct ccccgcgcgt tggccgattc attaatgcag agcttgcaat cgcgcgtttt    7140

ttcaatatta ttgaagcatt tatcagggtt attgtctcat gagcggatac atatttgaat    7200

gtatttagaa aaataaacaa atagggggttc cgcgcacatt tccccgaaaa gtgccacctg    7260

acgtctaaga aaccattatt atcatgacat taacctataa aaataggcgt agtacgaggc    7320

cctttcactc attagatgca tgtcgttaca taacttacgg taaatggccc gcctggctga    7380
```

ccgcccaacg accccccgccc attgacgtca ataatgacgt atgttcccat agtaacgcca    7440

atagggactt tccattgacg tcaatgggtg gagtatttac g                        7481


<210> 155

<211> 8123

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST27

<220>

<221> gene

<222> (130)..(793)

<223> GST


<220>

<221> gene

<222> (803)..(927)

<223> attR1


<220>

<221> gene

<222> (1036)..(1695)

<223> CmR


<220>

<221> gene

<222> (1815)..(1899)

<223> inactivated ccdA


<220>

<221> gene

<222> (2037)..(2342)

<223> ccdB


<220>

<221> gene

<222> (2383)..(2507)

<223> attR2


<220>

<221> gene

<222> (2693)..(3055)

<223> SV40 polyA


<220>

<221> gene

<222> (3250)..(3705)

<223> f1 intergenic region


<220>

<221> gene

<222> (3769)..(4187)

<223> SV40 promoter


<220>

<221> gene

<222> (4232)..(5026)

<223> neo


<220>

<221> gene

<222> (5090)..(5138)

<223> polyA

<220>

<221> gene

<222> (5549)..(6409)

<223> Apr

<220>

<221> gene

<222> (6558)..(7197)

<223> ori

<220>

<221> gene

<222> (27)..(7628)

<223> CMV promoter

<400> 155

```
ataagcagag ctcgtttagt gaaccgtcag atcgcctgga gacgccatcc acgctgtttt    60

gacctccata gaagacaccg ggaccgatcc agcctccgga ctctagccta ggccgcggac   120

catggcccct atactaggtt attggaaaat taagggcctt gtgcaaccca ctcgacttct   180

tttggaatat cttgaagaaa aatatgaaga gcatttgtat gagcgcgatg aaggtgataa   240

atggcgaaac aaaaagtttg aattgggttt ggagtttccc aatcttcctt attatattga   300

tggtgatgtt aaattaacac agtctatggc catcatacgt tatatagctg acaagcacaa   360

catgttgggt ggttgtccaa aagagcgtgc agagatttca atgcttgaag gagcggtttt   420

ggatattaga tacggtgttt cgagaattgc atatagtaaa gactttgaaa ctctcaaagt   480

tgattttctt agcaagctac ctgaaatgct gaaaatgttc gaagatcgtt tatgtcataa   540

aacatattta aatggtgatc atgtaaccca tcctgacttc atgttgtatg acgctcttga   600

tgttgtttta tacatggacc caatgtgcct ggatgcgttc ccaaaattag tttgttttaa   660

aaaacgtatt gaagctatcc cacaaattga taagtacttg aaatccagca agtatatagc   720

atggcctttg cagggctggc aagccacgtt tggtggtggc gaccatcctc caaaatcgga   780

tctggttccg cgttctagat caacaagttt gtacaaaaaa gctgaacgag aaacgtaaaa   840
```

```
tgatataaat atcaatatat taaattagat tttgcataaa aaacagacta cataatactg   900

taaaacacaa catatccagt cactatggcg gccgcattag gcaccccagg ctttacactt   960

tatgcttccg gctcgtataa tgtgtggatt ttgagttagg atccggcgag attttcagga  1020

gctaaggaag ctaaaatgga gaaaaaaatc actggatata ccaccgttga tatatcccaa  1080

tggcatcgta aagaacattt tgaggcattt cagtcagttg ctcaatgtac ctataaccag  1140

accgttcagc tggatattac ggcctttta aagaccgtaa agaaaaataa gcacaagttt  1200

tatccggcct ttattcacat tcttgcccgc ctgatgaatg ctcatccgga attccgtatg  1260

gcaatgaaag acggtgagct ggtgatatgg gatagtgttc acccttgtta caccgttttc  1320

catgagcaaa ctgaaacgtt ttcatcgctc tggagtgaat accacgacga tttccggcag  1380

tttctacaca tatattcgca agatgtggcg tgttacggtg aaaacctggc ctatttccct  1440

aaagggttta ttgagaatat gtttttcgtc tcagccaatc cctgggtgag tttcaccagt  1500

tttgatttaa acgtggccaa tatggacaac ttcttcgccc ccgttttcac catgggcaaa  1560

tattatacgc aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca tcatgccgtc  1620

tgtgatggct tccatgtcgg cagaatgctt aatgaattac aacagtactg cgatgagtgg  1680

cagggcgggg cgtaaagatc tggatccggc ttactaaaag ccagataaca gtatgcgtat  1740

ttgcgcgctg atttttgcgg tataagaata tatactgata tgtatacccg aagtatgtca  1800

aaaagaggtg tgctatgaag cagcgtatta cagtgacagt tgacagcgac agctatcagt  1860

tgctcaaggc atatatgatg tcaatatctc cggtctggta agcacaacca tgcagaatga  1920

agcccgtcgt ctgcgtgccg aacgctggaa agcggaaaat caggaaggga tggctgaggt  1980

cgcccggttt attgaaatga acggctcttt tgctgacgag aacagggact ggtgaaatgc  2040

agtttaaggt ttacacctat aaaagagaga gccgttatcg tctgtttgtg gatgtacaga  2100

gtgatattat tgacacgccc gggcgacgga tggtgatccc cctggccagt gcacgtctgc  2160

tgtcagataa agtctcccgt gaactttacc cggtggtgca tatcgggggat gaaagctggc  2220

gcatgatgac caccgatatg gccagtgtgc cggtctccgt tatcggggaa gaagtggctg  2280

atctcagcca ccgcgaaaat gacatcaaaa acgccattaa cctgatgttc tggggaatat  2340

aaatgtcagg ctcccttata cacagccagt ctgcaggtcg accatagtga ctggatatgt  2400

tgtgttttac agtattatgt agtctgtttt ttatgcaaaa tctaatttaa tatattgata  2460

tttatatcat tttacgtttc tcgttcagct ttcttgtaca aagtggttga tcgcgtgcat  2520

gcgacgtcat agctctctcc ctatagtgag tcgtattata agctaggcac tggccgtcgt  2580

tttacaacgt cgtgactggg aaaactgcta gcttgggatc tttgtgaagg aaccttactt  2640

ctgtggtgtg acataattgg acaaactacc tacagagatt taaagctcta aggtaaatat  2700
```

```
aaaatttta  agtgtataat  gtgttaaact  agctgcatat  gcttgctgct  tgagagtttt  2760

gcttactgag  tatgatttat  gaaaatatta  tacacaggag  ctagtgattc  taattgtttg  2820

tgtattttag  attcacagtc  ccaaggctca  tttcaggccc  ctcagtcctc  acagtctgtt  2880

catgatcata  atcagccata  ccacatttgt  agaggtttta  cttgctttaa  aaaacctccc  2940

acacctcccc  ctgaacctga  aacataaaat  gaatgcaatt  gttgttgtta  acttgtttat  3000

tgcagcttat  aatggttaca  aataaagcaa  tagcatcaca  aatttcacaa  ataaagcatt  3060

tttttcactg  cattctagtt  gtggtttgtc  caaactcatc  aatgtatctt  atcatgtctg  3120

gatcgatcct  gcattaatga  atcggccaac  gcgcggggag  aggcggtttg  cgtattggct  3180

ggcgtaatag  cgaagaggcc  cgcaccgatc  gcccttccca  acagttgcgc  agcctgaatg  3240

gcgaatggga  cgcgccctgt  agcggcgcat  taagcgcggc  gggtgtggtg  gttacgcgca  3300

gcgtgaccgc  tacacttgcc  agcgccctag  cgcccgctcc  tttcgctttc  ttcccttcct  3360

ttctcgccac  gttcgccggc  tttccccgtc  aagctctaaa  tcggggggctc  cctttagggt  3420

tccgatttag  tgctttacgg  cacctcgacc  ccaaaaaact  tgattagggt  gatggttcac  3480

gtagtgggcc  atcgccctga  tagacggttt  ttcgcccttt  gacgttggag  tccacgttct  3540

ttaatagtgg  actcttgttc  caaactggaa  caacactcaa  ccctatctcg  gtctattctt  3600

ttgatttata  agggattttg  ccgatttcgg  cctattggtt  aaaaaatgag  ctgatttaac  3660

aaatatttaa  cgcgaatttt  aacaaatat  taacgtttac  aatttcgcct  gatgcggtat  3720

tttctcctta  cgcatctgtg  cggtatttca  caccgcatac  gcggatctgc  gcagcaccat  3780

ggcctgaaat  aacctctgaa  agaggaactt  ggttaggtac  cttctgaggc  ggaaagaacc  3840

agctgtggaa  tgtgtgtcag  ttagggtgtg  gaaagtcccc  aggctcccca  gcaggcagaa  3900

gtatgcaaag  catgcatctc  aattagtcag  caaccaggtg  tggaaagtcc  ccaggctccc  3960

cagcaggcag  aagtatgcaa  agcatgcatc  tcaattagtc  agcaaccata  gtcccgcccc  4020

taactccgcc  catcccgccc  ctaactccgc  ccagttccgc  ccattctccg  ccccatggct  4080

gactaatttt  ttttatttat  gcagaggccg  aggccgcctc  ggcctctgag  ctattccaga  4140

agtagtgagg  aggcttttt  ggaggcctag  gcttttgcaa  aaagcttgat  tcttctgaca  4200

caacagtctc  gaacttaagg  ctagagccac  catgattgaa  caagatggat  tgcacgcagg  4260

ttctccggcc  gcttgggtgg  agaggctatt  cggctatgac  tgggcacaac  agacaatcgg  4320

ctgctctgat  gccgccgtgt  tccggctgtc  agcgcagggg  cgcccggttc  ttttttgtcaa  4380

gaccgacctg  tccggtgccc  tgaatgaact  gcaggacgag  gcagcgcggc  tatcgtggct  4440

ggccacgacg  ggcgttcctt  gcgcagctgt  gctcgacgtt  gtcactgaag  cgggaaggga  4500

ctggctgcta  ttgggcgaag  tgccggggca  ggatctcctg  tcatctcacc  ttgctcctgc  4560
```

```
cgagaaagta tccatcatgg ctgatgcaat gcggcggctg catacgcttg atccggctac   4620

ctgcccattc gaccaccaag cgaaacatcg catcgagcga gcacgtactc ggatggaagc   4680

cggtcttgtc gatcaggatg atctggacga agagcatcag gggctcgcgc cagccgaact   4740

gttcgccagg ctcaaggcgc gcatgcccga cggcgaggat ctcgtcgtga cccatggcga   4800

tgcctgcttg ccgaatatca tggtggaaaa tggccgcttt tctggattca tcgactgtgg   4860

ccggctgggt gtggcggacc gctatcagga catagcgttg gctacccgtg atattgctga   4920

agagcttggc ggcgaatggg ctgaccgctt cctcgtgctt tacggtatcg ccgctcccga   4980

ttcgcagcgc atcgccttct atcgccttct tgacgagttc ttctgagcgg gactctgggg   5040

ttcgaaatga ccgaccaagc gacgcccaac ctgccatcac gatggccgca ataaaatatc   5100

tttattttca ttacatctgt gtgttggttt tttgtgtgaa tcgatagcga taaggatccg   5160

cgtatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca   5220

cccgccaaca cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag   5280

acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa   5340

acgcgcgaga cgaaagggcc tcgtgatacg cctatttta taggttaatg tcatgataat   5400

aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg   5460

tttattttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat   5520

gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat   5580

tcccttttt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt   5640

aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag   5700

cggtaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga gcacttttaa   5760

agttctgcta tgtggcgcgg tattatcccg tattgacgcc gggcaagagc aactcggtcg   5820

ccgcatacac tattctcaga atgacttggt tgagtactca ccagtcacag aaaagcatct   5880

tacggatggc atgacagtaa gagaattatg cagtgctgcc ataaccatga gtgataacac   5940

tgcggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg cttttttgca   6000

caacatgggg gatcatgtaa ctcgccttga tcgttgggaa ccggagctga atgaagccat   6060

accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact   6120

attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc   6180

ggataaagtt gcaggaccac ttctgcgctc ggcccttccg gctggctggt ttattgctga   6240

taaatctgga gccggtgagc gtgggtctcg cggtatcatt gcagcactgg ggccagatgg   6300

taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg   6360

aaatagacag atcgctgaga taggtgcctc actgattaag cattggtaac tgtcagacca   6420
```

```
agtttactca tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta    6480

ggtgaagatc cttttgata atctcatgac caaaatccct taacgtgagt tttcgttcca    6540

ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt tttttctgcg    6600

cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt gtttgccgga    6660

tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaaa    6720

tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg tagcaccgcc    6780

tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg ataagtcgtg    6840

tcttaccggg ttggactcaa gacgatagtt accggataag gcgcagcggt cgggctgaac    6900

ggggggttcg tgcacacagc ccagcttgga gcgaacgacc tacaccgaac tgagatacct    6960

acagcgtgag cattgagaaa gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc    7020

ggtaagcggc agggtcggaa caggagagcg cacgagggag cttccagggg gaaacgcctg    7080

gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat ttttgtgatg    7140

ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt tacggttcct    7200

ggccttttgc tggccttttg ctcacatgtt ctttcctgcg ttatcccctg attctgtgga    7260

taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa cgaccgagcg    7320

cagcgagtca gtgagcgagg aagcggaaga gcgcccaata cgcaaaccgc ctctccccgc    7380

gcgttggccg attcattaat gcagagcttg caattcgcgc gtttttcaat attattgaag    7440

catttatcag ggttattgtc tcatgagcgg atacatattt gaatgtattt agaaaaataa    7500

acaaataggg gttccgcgca catttccccg aaaagtgcca cctgacgtct aagaaaccat    7560

tattatcatg acattaacct ataaaaatag gcgtagtacg aggccctttc actcattaga    7620

tgcatgtcgt tacataactt acggtaaatg ccccgcctgg ctgaccgccc aacgaccccc    7680

gcccattgac gtcaataatg acgtatgttc ccatagtaac gccaataggg actttccatt    7740

gacgtcaatg ggtggagtat ttacggtaaa ctgcccactt ggcagtacat caagtgtatc    7800

atatgccaag tacgccccct attgacgtca atgacggtaa atggcccgcc tggcattatg    7860

cccagtacat gaccttatgg gactttccta cttggcagta catctacgta ttagtcatcg    7920

ctattaccat ggtgatgcgg ttttggcagt acatcaatgg gcgtggatag cggtttgact    7980

cacggggatt tccaagtctc cacccattg acgtcaatgg gagtttgttt tggcaccaaa    8040

atcaacggga ctttccaaaa tgtcgtaaca actccgcccc attgacgcaa atgggcggta    8100

ggcgtgtacg gtgggaggtc tat    8123
```

<210> 156

<211> 4396

<212> DNA

<213> Artificial Sequence


<220>

<223> pEXP501

<400> 156

```
ccattcgcca ttcaggctgc gcaactgttg ggaagggcga tcggtgcggg cctcttcgct      60

attacgccag ccaatacgca aaccgcctct ccccgcgcgt tggccgattc attaatgcag     120

gatcgatcca gacatgataa gatacattga tgagtttgga caaaccacaa ctagaatgca     180

gtgaaaaaaa tgctttattt gtgaaatttg tgatgctatt gctttatttg taaccattat     240

aagctgcaat aaacaagtta acaacaacaa ttgcattcat tttatgtttc aggttcaggg     300

ggaggtgtgg gaggtttttt aaagcaagta aaacctctac aaatgtggta tggctgatta     360

tgatcatgaa cagactgtga ggactgaggg gcctgaaatg agccttggga ctgtgaatct     420

aaaatacaca aacaattaga atcactagct cctgtgtata atattttcat aaatcatact     480

cagtaagcaa aactctcaag cagcaagcat atgcagctag tttaacacat tatacactta     540

aaaattttat atttacctta gagctttaaa tctctgtagg tagtttgtcc aattatgtca     600

caccacagaa gtaaggttcc ttcacaaaga tcccaagcta gcagttttcc cagtcacgac     660

gttgtaaaac gacggccagt gcctagctta taatacgact cactataggg accactttgt     720

acaagaaagc tgggtacgcg taagcttggg cccctcgagg gatcctctag agcggccgcc     780

gactagtgag ctcgtcgacg atatcccggg aattccggac cggtaccagc ctgcttttttt   840

gtacaaactt gttctatagt gtcacctaaa taggcctaat ggtcatagct gtttcctgtg     900

tgaaattgtt atccgctccg cggcctaggc tagagtccgg aggctggatc ggtcccggtg     960

tcttctatgg aggtcaaaac agcgtggatg gcgtctccag gcgatctgac ggttcactaa    1020

acgagctctg cttatataga cctcccaccg tacacgccta ccgcccattt gcgtcaatgg    1080

ggcggagttg ttacgacatt ttggaaagtc ccgttgattt tggtgccaaa acaaactccc    1140

attgacgtca atggggtgga gacttggaaa tccccgtgag tcaaaccgct atccacgccc    1200

attgatgtac tgccaaaacc gcatcaccat ggtaatagcg atgactaata cgtagatgta    1260

ctgccaagta ggaaagtccc ataaggtcat gtactgggca taatgccagg cgggccattt    1320

accgtcattg acgtcaatag ggggcgtact ggcatatga tacacttgat gtactgccaa     1380

gtgggcagtt taccgtaaat actccaccca ttgacgtcaa tggaaagtcc ctattggcgt    1440

tactatggga acatacgtca ttattgacgt caatgggcgg gggtcgttgg gcggtcagcc    1500

aggcgggcca tttaccgtaa gttatgtaac gacatgcatc taatgagtga aagggcctcg    1560
```

tactacgcct atttttatag gttaatgtca tgataataat ggtttcttag acgtcaggtg    1620

gcactttcg gggaaatgtg cgcggaaccc ctatttgttt attttctaa atacattcaa    1680

atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat tgaaaaacgc    1740

gcgaattgca agctctgcat taatgaatcg gccaacgcgc ggggagaggc ggtttgcgta    1800

ttgggcgctc ttccgcttcc tcgctcactg actcgctgcg ctcggtcgtt cggctgcggc    1860

gagcggtatc agctcactca aaggcggtaa tacggttatc cacagaatca ggggataacg    1920

caggaaagaa catgtgagca aaaggccagc aaaaggccag gaaccgtaaa aaggccgcgt    1980

tgctggcgtt tttccatagg ctccgccccc ctgacgagca tcacaaaaat cgacgctcaa    2040

gtcagaggtg gcgaaacccg acaggactat aaagatacca ggcgtttccc cctggaagct    2100

ccctcgtgcg ctctcctgtt ccgaccctgc cgcttaccgg atacctgtcc gcctttctcc    2160

cttcgggaag cgtggcgctt tctcaatgct cacgctgtag gtatctcagt tcggtgtagg    2220

tcgttcgctc caagctgggc tgtgtgcacg aaccccccgt tcagcccgac cgctgcgcct    2280

tatccggtaa ctatcgtctt gagtccaacc cggtaagaca cgacttatcg ccactggcag    2340

cagccactgg taacaggatt agcagagcga ggtatgtagg cggtgctaca gagttcttga    2400

agtggtggcc taactacggc tacactagaa ggacagtatt tggtatctgc gctctgctga    2460

agccagttac cttcggaaaa agagttggta gctcttgatc cggcaaacaa accaccgctg    2520

gtagcggtgg tttttttgtt tgcaagcagc agattacgcg cagaaaaaaa ggatctcaag    2580

aagatccttt gatcttttct acggggtctg acgctcagtg gaacgaaaac tcacgttaag    2640

ggattttggt catgccataa cttcgtatag catacattat acgaagttat ggcatgagat    2700

tatcaaaaag gatcttcacc tagatccttt taaattaaaa atgaagtttt aaatcaatct    2760

aaagtatata tgagtaaact tggtctgaca gttaccaatg cttaatcagt gaggcaccta    2820

tctcagcgat ctgtctattt cgttcatcca tagttgcctg actccccgtc gtgtagataa    2880

ctacgatacg ggagggctta ccatctggcc ccagtgctgc aatgataccg cgagacccac    2940

gctcaccggc tccagattta tcagcaataa accagccagc cggaagggcc gagcgcagaa    3000

gtggtcctgc aactttatcc gcctccatcc agtctattaa ttgttgccgg gaagctagag    3060

taagtagttc gccagttaat agtttgcgca acgttgttgc cattgctaca ggcatcgtgg    3120

tgtcacgctc gtcgtttggt atggcttcat tcagctccgg ttcccaacga tcaaggcgag    3180

ttacatgatc ccccatgttg tgcaaaaaag cggttagctc cttcggtcct ccgatcgttg    3240

tcagaagtaa gttggccgca gtgttatcac tcatggttat ggcagcactg cataattctc    3300

ttactgtcat gccatccgta agatgctttt ctgtgactgg tgagtactca accaagtcat    3360

tctgagaata gtgtatgcgg cgaccgagtt gctcttgccc ggcgtcaata cgggataata    3420

```
ccgcgccaca tagcagaact ttaaaagtgc tcatcattgg aaaacgttct tcggggcgaa     3480

aactctcaag gatcttaccg ctgttgagat ccagttcgat gtaacccact cgtgcaccca     3540

actgatcttc agcatctttt actttcacca gcgtttctgg gtgagcaaaa acaggaaggc     3600

aaaatgccgc aaaaaaggga ataagggcga cacggaaatg ttgaatactc atactcttcc     3660

tttttcaata ttattgaagc atttatcagg gttattgtct catgccaggg gtgggcacac     3720

atatttgata ccagcgatcc ctacacagca cataattcaa tgcgacttcc ctctatcgca     3780

catcttagac ctttattctc cctccagcac acatcgaagc tgccgagcaa gccgttctca     3840

ccagtccaag acctggcatg agcggataca tatttgaatg tatttagaaa aataaacaaa     3900

tagggggttcc gcgcacattt ccccgaaaag tgccacctga aattgtaaac gttaatattt     3960

tgttaaaatt cgcgttaaat ttttgttaaa tcagctcatt ttttaaccaa taggccgaaa     4020

tcggcaaaat cccttataaa tcaaaagaat agaccgagat agggttgagt gttgttccag     4080

tttggaacaa gagtccacta ttaaagaacg tggactccaa cgtcaaaggg cgaaaaaccg     4140

tctatcaggg cgatggccca ctacgtgaac catcaccta atcaagtttt ttggggtcga     4200

ggtgccgtaa agcactaaat cggaacccta aagggagccc ccgatttaga gcttgacggg     4260

gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc gaaaggagcg ggcgctaggg     4320

cgctggcaag tgtagcggtc acgctgcgcg taaccaccac acccgccgcg cttaatgcgc     4380

cgctacaggg cgcgtc                                                     4396
```

<210> 157

<211> 4470

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR201

<220>

<221> gene

<222> (29)..(260)

<223> attP1


<220>

<221> gene

```
<222>   (656)..(961)

<223>   ccdB


<220>

<221>   gene

<222>   (1099)..(1184)

<223>   ccdA


<220>

<221>   gene

<222>   (1303)..(1962)

<223>   CmR


<220>

<221>   gene

<222>   (2210)..(2442)

<223>   attP2


<220>

<221>   gene

<222>   (2565)..(3374)

<223>   Kmr


<220>

<221>   gene

<222>   (3495)..(4134)

<223>   ori


<400>   157
gttaacgcta gcatggatct cgggccccaa ataatgattt tattttgact gatagtgacc      60

tgttcgttgc aacaaattga tgagcaatgc ttttttataa tgccaacttt gtacaaaaaa     120

gctgaacgag aaacgtaaaa tgatataaat atcaatatat taaattagat tttgcataaa     180
```

```
aaacagacta cataatactg taaaacacaa catatccagt cactatgaat caactactta   240

gatggtatta gtgacctgta gtcgaccgac agccttccaa atgttcttcg ggtgatgctg   300

ccaacttagt cgaccgacag ccttccaaat gttcttctca acggaatcg tcgtatccag   360

cctactcgct attgtcctca atgccgtatt aaatcataaa aagaaataag aaaaagaggt   420

gcgagcctct tttttgtgtg acaaaataaa aacatctacc tattcatata cgctagtgtc   480

atagtcctga aaatcatctg catcaagaac aatttcacaa ctcttatact tttctcttac   540

aagtcgttcg gcttcatctg gattttcagc ctctatactt actaaacgtg ataaagtttc   600

tgtaatttct actgtatcga cctgcagact ggctgtgtat aagggagcct gacatttata   660

ttccccagaa catcaggtta atggcgtttt tgatgtcatt ttcgcggtgg ctgagatcag   720

ccacttcttc cccgataacg gagaccggca cactggccat atcggtggtc atcatgcgcc   780

agctttcatc cccgatatgc accaccgggt aaagttcacg ggagacttta tctgacagca   840

gacgtgcact ggccaggggg atcaccatcc gtcgcccggg cgtgtcaata atatcactct   900

gtacatccac aaacagacga taacggctct ctcttttata ggtgtaaacc ttaaactgca   960

tttcaccagt ccctgttctc gtcagcaaaa gagccgttca tttcaataaa ccgggcgacc   1020

tcagccatcc cttcctgatt ttccgctttc cagcgttcgg cacgcagacg acgggcttca   1080

ttctgcatgg ttgtgcttac cagaccggag atattgacat catatatgcc ttgagcaact   1140

gatagctgtc gctgtcaact gtcactgtaa tacgctgctt catagcacac ctctttttga   1200

catacttcgg gtatacatat cagtatatat cttataccg caaaaatcag cgcgcaaata   1260

cgcatactgt tatctggctt ttagtaagcc ggatccacgc gattacgccc cgccctgcca   1320

ctcatcgcag tactgttgta attcattaag cattctgccg acatggaagc catcacagac   1380

ggcatgatga acctgaatcg ccagcggcat cagcaccttg tcgccttgcg tataatattt   1440

gcccatggtg aaaacggggg cgaagaagtt gtccatattg gccacgttta aatcaaaact   1500

ggtgaaactc acccagggat tggctgagac gaaaaacata ttctcaataa acccctttagg   1560

gaaataggcc aggttttcac cgtaacacgc cacatcttgc gaatatatgt gtagaaactg   1620

ccggaaatcg tcgtggtatt cactccagag cgatgaaaac gtttcagttt gctcatggaa   1680

aacggtgtaa caagggtgaa cactatccca tatcaccagc tcaccgtctt tcattgccat   1740

acggaattcc ggatgagcat tcatcaggcg ggcaagaatg tgaataaagg ccggataaaa   1800

cttgtgctta ttttctttta cggtctttaa aaaggccgta atatccagct gaacggtctg   1860

gttataggta cattgagcaa ctgactgaaa tgcctcaaaa tgttctttac gatgccattg   1920

ggatatatca acggtggtat atccagtgat ttttttctcc attttagctt ccttagctcc   1980

tgaaaatctc gataactcaa aaaatacgcc cggtagtgat cttatttcat tatggtgaaa   2040
```

```
gttggaacct cttacgtgcc gatcaacgtc tcattttcgc caaaagttgg cccagggctt    2100

cccggtatca acagggacac caggatttat ttattctgcg aagtgatctt ccgtcacagg    2160

tatttattcg gcgcaaagtg cgtcgggtga tgctgccaac ttagtcgact acaggtcact    2220

aataccatct aagtagttga ttcatagtga ctggatatgt tgtgttttac agtattatgt    2280

agtctgtttt ttatgcaaaa tctaatttaa tatattgata tttatatcat tttacgtttc    2340

tcgttcagct ttcttgtaca aagttggcat tataagaaag cattgcttat caatttgttg    2400

caacgaacag gtcactatca gtcaaaataa aatcattatt tgccatccag ctgcagctct    2460

ggcccgtgtc tcaaaatctc tgatgttaca ttgcacaaga taaaaatata tcatcatgaa    2520

caataaaact gtctgcttac ataaacagta atacaagggg tgttatgagc catattcaac    2580

gggaaacgtc gaggccgcga ttaaattcca acatggatgc tgatttatat gggtataaat    2640

gggctcgcga taatgtcggg caatcaggtg cgacaatcta tcgcttgtat gggaagcccg    2700

atgcgccaga gttgtttctg aaacatggca aaggtagcgt tgccaatgat gttacagatg    2760

agatggtcag actaaactgg ctgacggaat ttatgcctct tccgaccatc aagcatttta    2820

tccgtactcc tgatgatgca tggttactca ccactgcgat ccccggaaaa acagcattcc    2880

aggtattaga agaatatcct gattcaggtg aaaatattgt tgatgcgctg gcagtgttcc    2940

tgcgccggtt gcattcgatt cctgtttgta attgtccttt aacagcgat cgcgtatttc    3000

gtctcgctca ggcgcaatca cgaatgaata acggtttggt tgatgcgagt gattttgatg    3060

acgagcgtaa tggctggcct gttgaacaag tctggaaaga aatgcataaa cttttgccat    3120

tctcaccgga ttcagtcgtc actcatggtg atttctcact tgataacctt atttttgacg    3180

aggggaaatt aataggttgt attgatgttg acgagtcgg aatcgcagac cgataccagg    3240

atcttgccat cctatggaac tgcctcggtg agttttctcc ttcattacag aaacggcttt    3300

ttcaaaaata tggtattgat aatcctgata tgaataaatt gcagtttcat ttgatgctcg    3360

atgagttttt ctaatcagaa ttggttaatt ggttgtaaca ctggcagagc attacgctga    3420

cttgacggga cggcgcaagc tcatgaccaa aatcccttaa cgtgagtttt cgttccactg    3480

agcgtcagac cccgtagaaa agatcaaagg atcttcttga gatccttttt ttctgcgcgt    3540

aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg gtggtttgtt tgccggatca    3600

agagctacca actctttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac    3660

tgtccttcta gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac    3720

atacctcgct ctgctaatcc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct    3780

taccgggttg gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg    3840

gggttcgtgc acacagccca gcttggagcg aacgacctac accgaactga gatacctaca    3900
```

```
gcgtgagcta tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt    3960

aagcggcagg gtcggaacag gagagcgcac gagggagctt ccaggggggaa acgcctggta    4020

tctttatagt cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc    4080

gtcaggggggg cggagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc    4140

cttttgctgg ccttttgctc acatgttctt tcctgcgtta tccctgatt ctgtggataa    4200

ccgtattacc gctagccagg aagagtttgt agaaacgcaa aaaggccatc cgtcaggatg    4260

gccttctgct tagtttgatg cctggcagtt tatggcgggc gtcctgcccg ccaccctccg    4320

ggccgttgct tcacaacgtt caaatccgct cccggcggat ttgtcctact caggagagcg    4380

ttcaccgaca aacaacagat aaaacgaaag gcccagtctt ccgactgagc ctttcgtttt    4440

atttgatgcc tggcagttcc ctactctcgc                                      4470
```

<210> 158

<211> 4204

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR202

<220>

<221> gene

<222> (127)..(269)

<223> attP1


<220>

<221> gene

<222> (486)..(1059)

<223> ori


<220>

<221> gene

<222> (1228)..(2107)

<223> KmR

<220>

<221>   gene

<222>   (2140)..(2381)

<223>   attP2


<220>

<221>   gene

<222>   (2629)..(3288)

<223>   CmR


<220>

<221>   gene

<222>   (3408)..(3492)

<223>   inactivated ccdA


<220>

<221>   gene

<222>   (3630)..(3935)

<223>   ccdB


```
<400>   158
cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt        60
ggaaggctgt cggtcgacta agttggcagc atcacccgaa gaacatttgg aaggctgtcg       120
gtcgactaca ggtcactaat accatctaag tagttgattc atagtgactg gatatgttgt       180
gttttacagt attatgtagt ctgtttttta tgcaaaatct aatttaatat attgatattt       240
atatcatttt acgtttctcg ttcagctttt ttgtacaaag ttggcattat aaaaaagcat       300
tgctcatcaa tttgttgcaa cgaacaggtc actatcagtc aaaataaaat cattatttgg       360
ggcccgagat ccatgctagc ggtaatacgg ttatccacag aatcagggga taacgcagga       420
aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaggc cgcgttgctg       480
gcgtttttcc ataggctccg cccccctgac gagcatcaca aaaatcgacg ctcaagtcag       540
aggtggcgaa acccgacagg actataaaga taccaggcgt ttccccctgg aagctccctc       600
```

```
gtgcgctctc ctgttccgac cctgccgctt accggatacc tgtccgcctt tctcccttcg        660

ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc tcagttcggt gtaggtcgtt        720

cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg cgccttatcc        780

ggtaactatc gtcttgagtc caacccggta agacacgact tatcgccact ggcagcagcc        840

actggtaaca ggattagcag agcgaggtat gtaggcggtg ctacagagtt cttgaagtgg        900

tggcctaact acggctacac tagaaggaca gtatttggta tctgcgctct gctgaagcca        960

gttaccttcg gaaaaagagt tggtagctct tgatccggca aacaaaccac cgctggtagc       1020

ggtggttttt ttgtttgcaa gcagcagatt acgcgcagaa aaaaggatc tcaagaagat       1080

cctttgatct tttctacggg gtctgacgct cagtggaacg aaaactcacg ttaagggatt       1140

ttggtcatga gcttgcgccg tcccgtcaag tcagcgtaat gctctgccag tgttacaacc       1200

aattaaccaa ttctgattag aaaaactcat cgagcatcaa atgaaactgc aatttattca       1260

tatcaggatt atcaatacca tattttgaa aaagccgttt ctgtaatgaa ggagaaaact       1320

caccgaggca gttccatagg atggcaagat cctggtatcg gtctgcgatt ccgactcgtc       1380

caacatcaat acaacctatt aatttcccct cgtcaaaaat aaggttatca agtgagaaat       1440

caccatgagt gacgactgaa tccggtgaga atggcaaaag tttatgcatt tctttccaga       1500

cttgttcaac aggccagcca ttacgctcgt catcaaaatc actcgcatca accaaaccgt       1560

tattcattcg tgattgcgcc tgagcgagac gaaatacgcg atcgctgtta aaaggacaat       1620

tacaaacagg aatcgaatgc aaccggcgca ggaacactgc cagcgcatca acaatatttt       1680

cacctgaatc aggatattct tctaatacct ggaatgctgt ttttccgggg atcgcagtgg       1740

tgagtaacca tgcatcatca ggagtacgga taaaatgctt gatggtcgga agaggcataa       1800

attccgtcag ccagtttagt ctgaccatct catctgtaac atcattggca acgctacctt       1860

tgccatgttt cagaaacaac tctggcgcat cgggcttccc atacaagcga tagattgtcg       1920

cacctgattg cccgacatta tcgcgagccc atttataccc atataaatca gcatccatgt       1980

tggaatttaa tcgcggcctc gacgtttccc gttgaatatg gctcataaca ccccttgtat       2040

tactgtttat gtaagcagac agttttattg ttcatgatga tatattttta tcttgtgcaa       2100

tgtaacatca gagattttga dacacgggcc agagctgcag ctggatggca ataatgatt       2160

ttattttgac tgatagtgac ctgttcgttg caacaaattg ataagcaatg ctttcttata       2220

atgccaactt tgtacaagaa agctgaacga gaaacgtaaa atgatataaa tatcaatata       2280

ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca acatatccag       2340

tcactatgaa tcaactactt agatggtatt agtgacctgt agtcgactaa gttggcagca       2400

tcacccgacg cactttgcgc cgaataaata cctgtgacgg aagatcactt cgcagaataa       2460
```

```
ataaatcctg gtgtccctgt tgataccggg aagccctggg ccaacttttg gcgaaaatga   2520

gacgttgatc ggcacgtaag aggttccaac tttcaccata atgaaataag atcactaccg   2580

ggcgtatttt ttgagttatc gagattttca ggagctaagg aagctaaaat ggagaaaaaa   2640

atcactggat ataccaccgt tgatatatcc caatggcatc gtaaagaaca ttttgaggca   2700

tttcagtcag ttgctcaatg tacctataac cagaccgttc agctggatat tacggccttt   2760

ttaaagaccg taaagaaaaa taagcacaag ttttatccgg cctttattca cattcttgcc   2820

cgcctgatga atgctcatcc ggaattccgt atggcaatga agacggtga gctggtgata   2880

tgggatagtg ttcacccttg ttacaccgtt ttccatgagc aaactgaaac gttttcatcg   2940

ctctggagtg aataccacga cgatttccgg cagtttctac acatatattc gcaagatgtg   3000

gcgtgttacg gtgaaaacct ggcctatttc cctaaagggt ttattgagaa tatgtttttc   3060

gtctcagcca tccctgggt gagtttcacc agttttgatt taaacgtggc caatatggac   3120

aacttcttcg cccccgtttt caccatgggc aaatattata cgcaaggcga caaggtgctg   3180

atgccgctgg cgattcaggt tcatcatgcc gtctgtgatg gcttccatgt cggcagaatg   3240

cttaatgaat tacaacagta ctgcgatgag tggcagggcg gggcgtaatc gcgtggatcc   3300

ggcttactaa aagccagata acagtatgcg tatttgcgcg ctgattttg cggtataaga   3360

atatatactg atatgtatac ccgaagtatg tcaaaaagag gtgtgctatg aagcagcgta   3420

ttacagtgac agttgacagc gacagctatc agttgctcaa ggcatatatg atgtcaatat   3480

ctccggtctg gtaagcacaa ccatgcagaa tgaagcccgt cgtctgcgtg ccgaacgctg   3540

gaaagcggaa aatcaggaag ggatggctga ggtcgcccgg tttattgaaa tgaacggctc   3600

ttttgctgac gagaacaggg actggtgaaa tgcagtttaa ggtttacacc tataaaagag   3660

agagccgtta tcgtctgttt gtggatgtac agagtgatat tattgacacg cccgggcgac   3720

ggatggtgat cccctggcc agtgcacgtc tgctgtcaga taaagtctcc cgtgaacttt   3780

acccggtggt gcatatcggg gatgaaagct ggcgcatgat gaccaccgat atggccagtg   3840

tgccggtctc cgttatcggg gaagaagtgg ctgatctcag ccaccgcgaa aatgacatca   3900

aaaacgccat taacctgatg ttctggggaa tataaatgtc aggctccctt atacacagcc   3960

agtctgcagg tcgatacagt agaaattaca gaaactttat cacgtttagt aagtatagag   4020

gctgaaaatc cagatgaagc cgaacgactt gtaagagaaa agtataagag ttgtgaaatt   4080

gttcttgatg cagatgattt tcaggactat gacactagcg tatatgaata ggtagatgtt   4140

tttattttgt cacacaaaaa agaggctcgc acctcttttt cttatttctt tttatgattt   4200

aata                                                                 4204
```

<210> 159

<211> 4208

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR203

<220>

<221> gene

<222> (47)..(131)

<223> inactivated ccdA


<220>

<221> gene

<222> (251)..(910)

<223> CmR


<220>

<221> gene

<222> (1158)..(1398)

<223> attP2


<220>

<221> gene

<222> (1509)..(2082)

<223> ori


<220>

<221> gene

<222> (2251)..(3130)

<223> KmR

<220>

<221>   gene

<222>   (3174)..(3464)

<223>   attP1


<220>

<221>   gene

<222>   (3812)..(4117)

<223>   ccdB


<400>   159
gcgttcggca cgcagacgac gggcttcatt ctgcatggtt gtgcttacca gaccggagat      60

attgacatca tatatgcctt gagcaactga tagctgtcgc tgtcaactgt cactgtaata     120

cgctgcttca tagcacacct cttttgaca tacttcgggt atacatatca gtatatattc     180

ttataccgca aaaatcagcg cgcaaatacg catactgtta tctggctttt agtaagccgg     240

atccacgcgt ttacgccccg ccctgccact catcgcagta ctgttgtaat tcattaagca     300

ttctgccgac atggaagcca tcacagacgg catgatgaac ctgaatcgcc agcggcatca     360

gcaccttgtc gccttgcgta taatatttgc ccatggtgaa aacggggggcg aagaagttgt     420

ccatattggc cacgtttaaa tcaaaactgg tgaaactcac ccagggattg gctgagacga     480

aaaacatatt ctcaataaac cctttaggga ataggccag gttttcaccg taacacgcca     540

catcttgcga atatatgtgt agaaactgcc ggaaatcgtc gtggtattca ctccagagcg     600

atgaaaacgt ttcagtttgc tcatggaaaa cggtgtaaca agggtgaaca ctatcccata     660

tcaccagctc accgtctttc attgccatac ggaattccgg atgagcattc atcaggcggg     720

caagaatgtg aataaaggcc ggataaaact tgtgcttatt tttctttacg gtctttaaaa     780

aggccgtaat atccagctga acggtctggt tataggtaca ttgagcaact gactgaaatg     840

cctcaaaatg ttctttacga tgccattggg atatatcaac ggtggtatat ccagtgattt     900

ttttctccat tttagcttcc ttagctcctg aaaatctcga taactcaaaa aatacgcccg     960

gtagtgatct tatttcatta tggtgaaagt tggaacctct acgtgccga tcaacgtctc    1020

attttcgcca aaagttggcc cagggcttcc cggtatcaac agggacacca ggatttattt    1080

attctgcgaa gtgatcttcc gtcacaggta tttattcggc gcaaagtgcg tcgggtgatg    1140

ctgccaactt agtcgactac aggtcactaa taccatctaa gtagttgatt catagtgact    1200

ggatatgttg tgttttacag tattatgtag tctgtttttt atgcaaaatc taatttaata    1260

```
tattgatatt tatatcattt tacgtttctc gttcagcttt cttgtacaaa gttggcatta   1320

taagaaagca ttgcttatca atttgttgca acgaacaggt cactatcagt caaaataaaa   1380

tcattatttg ccatccagct agcggtaata cggttatcca cagaatcagg ggataacgca   1440

ggaaagaaca tgtgagcaaa aggccagcaa aaggccagga accgtaaaaa ggccgcgttg   1500

ctggcgtttt tccataggct ccgcccccct gacgagcatc acaaaaatcg acgctcaagt   1560

cagaggtggc gaaacccgac aggactataa agataccagg cgtttccccc tggaagctcc   1620

ctcgtgcgct ctcctgttcc gaccctgccg cttaccggat acctgtccgc ctttctccct   1680

tcgggaagcg tggcgctttc tcatagctca cgctgtaggt atctcagttc ggtgtaggtc   1740

gttcgctcca agctgggctg tgtgcacgaa ccccccgttc agcccgaccg ctgcgcctta   1800

tccggtaact atcgtcttga gtccaacccg gtaagacacg acttatcgcc actggcagca   1860

gccactggta acaggattag cagagcgagg tatgtaggcg gtgctacaga gttcttgaag   1920

tggtggccta actacggcta cactagaaga acagtatttg gtatctgcgc tctgctgaag   1980

ccagttacct tcggaaaaag agttggtagc tcttgatccg gcaaacaaac caccgctggt   2040

agcggtggtt tttttgtttg caagcagcag attacgcgca gaaaaaaagg atctcaagaa   2100

gatcctttga tcttttctac ggggtctgac gctcagtgga acgaaaactc acgttaaggg   2160

attttggtca tgagcttgcg ccgtcccgtc aagtcagcgt aatgctctgc cagtgttaca   2220

accaattaac caattctgat tagaaaaact catcgagcat caaatgaaac tgcaatttat   2280

tcatatcagg attatcaata ccatattttt gaaaaagccg tttctgtaat gaaggagaaa   2340

actcaccgag gcagttccat aggatggcaa gatcctggta tcggtctgcg attccgactc   2400

gtccaacatc aatacaacct attaatttcc cctcgtcaaa aataaggtta tcaagtgaga   2460

aatcaccatg agtgacgact gaatccggtg agaatggcaa aagtttatgc atttctttcc   2520

agacttgttc aacaggccag ccattacgct cgtcatcaaa atcactcgca tcaaccaaac   2580

cgttattcat tcgtgattgc gcctgagcga gacgaaatac gcgatcgctg ttaaaaggac   2640

aattacaaac aggaatcgaa tgcaaccggc gcaggaacac tgccagcgca tcaacaatat   2700

tttcacctga atcaggatat cttctaata cctggaatgc tgttttttccg gggatcgcag   2760

tggtgagtaa ccatgcatca tcaggagtac ggataaaatg cttgatggtc ggaagaggca   2820

taaattccgt cagccagttt agtctgacca tctcatctgt aacatcattg gcaacgctac   2880

ctttgccatg tttcagaaac aactctggcg catcgggctt cccatacaag cgatagattg   2940

tcgcacctga ttgcccgaca ttatcgcgag cccatttata cccatataaa tcagcatcca   3000

tgttggaatt taatcgcggc ctcgacgttt ccgttgaat atggctcata acaccccttg   3060

tattactgtt tatgtaagca gacagtttta ttgttcatga tgatatattt ttatcttgtg   3120
```

```
caatgtaaca tcagagattt tgagacacgg gccagagctg cagctagcat ggatctcggg    3180

ccccaaataa tgattttatt ttgactgata gtgacctgtt cgttgcaaca aattgatgag    3240

caatgctttt ttataatgcc aactttgtac aaaaaagctg aacgagaaac gtaaaatgat    3300

ataaatatca atatattaaa ttagattttg cataaaaaac agactacata atactgtaaa    3360

acacaacata tccagtcact atgaatcaac tacttagatg gtattagtga cctgtagtcg    3420

accgacagcc ttccaaatgt tcttcgggtg atgctgccaa cttagtcgac cgacagcctt    3480

ccaaatgttc ttctcaaacg gaatcgtcgt atccagccta ctcgctattg tcctcaatgc    3540

cgtattaaat cataaaaaga aataagaaaa agaggtgcga gcctcttttt tgtgtgacaa    3600

aataaaaaca tctacctatt catatacgct agtgtcatag tcctgaaaat catctgcatc    3660

aagaacaatt tcacaactct tatacttttc tcttacaagt cgttcggctt catctggatt    3720

ttcagcctct atacttacta aacgtgataa agtttctgta atttctactg tatcgacctg    3780

cagactggct gtgtataagg gagcctgaca tttatattcc ccagaacatc aggttaatgg    3840

cgttttttgat gtcattttcg cggtggctga gatcagccac ttcttccccg ataacggaga    3900

ccggcacact ggccatatcg gtggtcatca tgcgccagct ttcatccccg atatgcacca    3960

ccgggtaaag ttcacgggag actttatctg acagcagacg tgcactggcc aggggggatca    4020

ccatccgtcg cccgggcgtg tcaataatat cactctgtac atccacaaac agacgataac    4080

ggctctctct tttataggtg taaaccttaa actgcatttc accagtccct gttctcgtca    4140

gcaaaagagc cgttcatttc aataaaccgg gcgacctcag ccatcccttc ctgattttcc    4200

gctttcca                                                             4208
```

<210> 160

<211> 4165

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR204

<220>

<221> misc_feature

<222> (1326)..(1326)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<400> 160

```
cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt     60

ggaaggctgt cggtcgacta caggtcacta ataccatcta agtagttgaa tcatagtgac    120

tggatatgtt gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat    180

atattgatat ttatatcatt ttacgtttct cgttcagctt ttttgtacaa agttggcatt    240

ataaaaaagc attgcttatc aatttgttgc aacgaacagg tcactatcag tcaaaataaa    300

atcattattt ggggcccgag atccatgcta gctgcagtgc gcagggcccg tgtctcaaaa    360

tctctgatgt tacattgcac aagataaaaa tatatcatca tgaacaataa aactgtctgc    420

ttacataaac agtaatacaa ggggtgttat gagccatatt caacgggaaa cgtcttgctg    480

gaggccgcga ttaaattcca acatggatgc tgatttatat gggtataaat gggctcgcga    540

taatgtcggg caatcaggtg cgacaatctt tcgattgtat gggaagcccg atgcgccaga    600

gttgtttctg aaacatggca aaggtagcgt tgccaatgat gttacagatg agatggtcag    660

actaaactgg ctgacggaat ttatgcctct tccgaccatc aagcatttta tccgtactcc    720

tgatgatgca tggttactca ccactgcgat ccgcgggaaa acagcattcc aggtattaga    780

agaatatcct gattcaggtg aaaatattgt tgatgcgctg gcagtgttcc tgcgccggtt    840

gcattcgatt cctgtttgta attgtccttt taacagcgat cgcgtatttc gtctcgctca    900

ggcgcaatca cgaatgaata cggtttggt tgatgcgagt gattttgatg acgagcgtaa    960

tggctggcct gttgaacaag tctggaaaga aatgcatacg cttttgccat tctcaccgga   1020

ttcagtcgtc actcatggtg atttctcact tgataacctt attttttgacg aggggaaatt   1080

aataggttgt attgatgttg gacgagtcgg aatcgcagac cgataccagg atcttgccat   1140

cctatggaac tgcctcggtg agttttctcc ttcattacag aaacggcttt ttcaaaaata   1200

tggtattgat aatcctgata tgaataaatt gcagtttcat ttgatgctcg atgagttttt   1260

ctaatcagaa ttggttaatt ggttgtaaca ctggcagagc attacgctga cttgacggga   1320

cggcgncatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt cagacccgt    1380

agaaaagatc aaaggatctt cttgagatcc ttttttttctg cgcgtaatct gctgcttgca   1440

aacaaaaaaa ccaccgctac cagcggtggt ttgtttgccg gatcaagagc taccaactct   1500

ttttccgaag gtaactggct tcagcagagc gcagatacca aatactgtcc ttctagtgta   1560

gccgtagtta ggccaccact tcaagaactc tgtagcaccg cctacatacc tcgctctgct   1620

aatcctgtta ccagtggctg ctgccagtgg cgataagtcg tgtcttaccg ggttggactc   1680

aagacgatag ttaccggata aggcgcagcg tcgggctga acggggggtt cgtgcacaca   1740

gcccagcttg gagcgaacga cctacaccga actgagatac ctacagcgtg agctatgaga   1800

aagcgccacg cttcccgaag ggagaaaggc ggacaggtat ccggtaagcg gcagggtcgg   1860
```

```
aacaggagag cgcacgaggg agcttccagg gggaaacgcc tggtatcttt atagtcctgt   1920

cgggtttcgc cacctctgac ttgagcgtcg atttttgtga tgctcgtcag gggggcggag   1980

cctatggaaa aacgccagca acgcggcctt tttacggttc ctggcctttt gctggccttt   2040

tgctcacatg ttctttcctg cgttatcccc tgattctgtg gataaccgta ttaccgctag   2100

ctggatcggc aaataatgat tttattttga ctgatagtga cctgttcgtt gcaacaaatt   2160

gataagcaat gcttttttat aatgccaact ttgtacaaga aagctgaacg agaaacgtaa   2220

aatgatataa atatcaatat attaaattag attttgcata aaaaacagac tacataatac   2280

tgtaaaacac aacatatcca gtcactatga ttcaactact tagatggtat tagtgacctg   2340

tagtcgacta agttggcagc atcacccgac gcactttgcg ccgaataaat acctgtgacg   2400

gaagatcact tcgcagaata aataaatcct ggtgtccctg ttgataccgg gaagccctgg   2460

gccaactttt ggcgaaaatg agacgttgat cggcacattt cacaactctt atacttttct   2520

cttacaagtc gttcggcttc atctggattt tcagcctcta tacttactaa acgtgataaa   2580

gtttctgtaa tttctactgt atcgacctgc agactggctg tgtataacgg agcctgacat   2640

ttatattccc cagaacatca ggttaatggc gttttttgatg tcattttcgc ggtggctgag   2700

atcagccact tcttccccga taacggagac cggcacactg gccatatcgg tggtcatcat   2760

gcgccagctt tcatccccga tatgcaccac cgggtaaagt tcacgggaga ctttatctga   2820

cagcagacgt gcactggcca gggggatcac catccgtcgc ccgggcgtgt caataatatc   2880

actctgtaca tccacaaaca gacgataacg gctctctctt ttataggtgt aaaccttaaa   2940

ctgcatttca ccagtccctg ttctcgtcag caaaagagcc gttcatttca ataaaccggg   3000

cgacctcagc catcccttcc tgattttccg ctttccagcg ttcggcacgc agacgacggg   3060

cttcattctg catggttgtg cttaccagac cggagatatt gacatcatat atgccttgag   3120

caactgatag ctgtcgctgt caactgtcac tgtaatacgc tgcttcatag cacacctctt   3180

tttgacatac ttcgggtata catatcagta tatattctta taccgcaaaa atcagcgcgc   3240

aaatacgcat actgttatct ggcttttagt aagccggatc cacgcgttta cgccccgccc   3300

tgccactcat cgcagtactg ttgtaattca ttaagcattc tgccgacatg gaagccatca   3360

cagacggcat gatgaacctg aatcgccagc ggcatcagca ccttgtcgcc ttgcgtataa   3420

tatttgccca tggtgaaaac ggggggcgaag aagttgtcca tattggccac gtttaaatca   3480

aaactggtga aactcaccca gggattggct gagacgaaaa acatattctc aataaaccct   3540

ttagggaaat aggccaggtt ttcaccgtaa cacgccacat cttgcgaata tatgtgtaga   3600

aactgccgga aatcgtcgtg gtattcactc cagagcgatg aaaacgtttc agtttgctca   3660

tggaaaacgg tgtaacaagg gtgaacacta tcccatatca ccagctcacc gtctttcatt   3720
```

```
gccatacgga attccggatg agcattcatc aggcgggcaa gaatgtgaat aaaggccgga    3780

taaaacttgt gcttattttt ctttacggtc tttaaaaagg ccgtaatatc cagctgaacg    3840

gtctggttat aggtacattg agcaactgac tgaaatgcct caaaatgttc tttacgatgc    3900

cattgggata tatcaacggt ggtatatcca gtgatttttt tctccatttt agcttcctta    3960

gctcctgaaa atctcgataa ctcaaaaaat acgcccggta gtgatcttat ttcattatgg    4020

tgaaagttgg aacctcttac tgttcttgat gcagatgatt ttcaggacta tgacactagc    4080

atatatgaat aggtagatgt ttttattttg tcacacaaaa aagaggctcg cacctctttt    4140

tcttatttct ttttatgatt taata    4165
```

<210> 161

<211> 4939

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR205

<400> 161
```
ggcatcagca ccttgtcgcc ttgcgtataa tatttgccca tggtgaaaac gggggcgaag    60

aagttgtcca tattggccac gtttaaatca aaactggtga actcaccca gggattggct     120

gagacgaaaa acatattctc aataaaccct ttagggaaat aggccaggtt ttcaccgtaa    180

cacgccacat cttgcgaata tatgtgtaga aactgccgga aatcgtcgtg gtattcactc    240

cagagcgatg aaaacgtttc agtttgctca tggaaaacgg tgtaacaagg gtgaacacta    300

tcccatatca ccagctcacc gtctttcatt gccatacgga attccggatg agcattcatc    360

aggcgggcaa gaatgtgaat aaaggccgga taaaacttgt gcttattttt ctttacggtc    420

tttaaaaagg ccgtaatatc cagctgaacg gtctggttat aggtacattg agcaactgac    480

tgaaatgcct caaaatgttc tttacgatgc cattgggata tatcaacggt ggtatatcca    540

gtgatttttt tctccatttt agcttcctta gctcctgaaa atctcgataa ctcaaaaaat    600

acgcccggta gtgatcttat ttcattatgg tgaaagttgg aacctcttac gtgccgatca    660

acgtctcatt ttcgccaaaa gttggcccag gcttcccgg tatcaacagg acaccagga     720

tttatttatt ctgcgaagtg atcttccgtc acaggtattt attcggcgca aagtgcgtcg    780

ggtgatgctg ccaacttagt cgactacagg tcactaatac catctaagta gttgattcat    840

agtgactgga tatgttgtgt tttacagtat tatgtagtct gttttttatg caaaatctaa    900
```

```
tttaatatat tgatatttat atcattttac gtttctcgtt cagctttctt gtacaaagtt      960

ggcattataa gaaagcattg cttatcaatt tgttgcaacg aacaggtcac tatcagtcaa     1020

aataaaatca ttatttgcca tccagctgca gctctggccc gtgtctcaaa atctctgatg     1080

ttacattgca caagataaaa atatatcatc atgaattctc atgtttgaca gcttatcatc     1140

gataagcttt aatgcggtag tttatcacag ttaaattgct aacgcagtca ggcaccgtgt     1200

atgaaatcta acaatgcgct catcgtcatc ctcggcaccg tcaccctgga tgctgtaggc     1260

ataggcttgg ttatgccggt actgccgggc ctcttgcggg atatcgtcca ttccgacagc     1320

atcgccagtc actatggcgt gctgctagcg ctatatgcgt tgatgcaatt tctatgcgca     1380

cccgttctcg gagcactgtc cgaccgcttt ggccgccgcc cagtcctgct cgcttcgcta     1440

cttggagcca ctatcgacta cgcgatcatg gcgaccacac ccgtcctgtg gatcctctac     1500

gccggacgca tcgtggccgg catcaccggc gccacaggtg cggttgctgg cgcctatatc     1560

gccgacatca ccgatgggga agatcgggct cgccacttcg ggctcatgag cgcttgtttc     1620

ggcgtgggta tggtggcagg ccccgtggcc gggggactgt tgggcgccat ctccttgcat     1680

gcaccattcc ttgcggcggc ggtgctcaac ggcctcaacc tactactggg ctgcttccta     1740

atgcaggagt cgcataaggg agagcgtcga ccgatgccct tgagagcctt caacccagtc     1800

agctccttcc ggtgggcgcg gggcatgact atcgtcgccg cacttatgac tgtcttcttt     1860

atcatgcaac tcgtaggaca ggtgccggca gcgctctggg tcattttcgg cgaggaccgc     1920

tttcgctgga gcgcgacgat gatcggcctg tcgcttgcgg tattcggaat cttgcacgcc     1980

ctcgctcaag ccttcgtcac tggtcccgcc accaaacgtt tcggcgagaa gcaggccatt     2040

atcgccggca tggcggccga cgcgctgggc tacgtcttgc tggcgttcgc gacgcgaggc     2100

tggatggcct tccccattat gattcttctc gcttccggcg gcatcgggat gcccgcgttg     2160

caggccatgc tgtccaggca ggtagatgac gaccatcagg gacagcttca aggatcgctc     2220

gcggctctta ccagcctaac ttcgatcatt ggaccgctga tcgtcacggc gatttatgcc     2280

gcctcggcga gcacatggaa cgggttggca tggattgtag gcgccgccct ataccttgtc     2340

tgcctccccg cgttgcgtcg cggtgcatgg agccgggcca cctcgacctg aatggaagcc     2400

ggcggcacct cgctaacgga ttcaccactc caagaattgg agccaatcaa ttcttgcgga     2460

gaactgtgaa tgcgcaaacc aacccttggc agaacatatc catcgcatga ccaaaatccc     2520

ttaacgtgag ttttcgttcc actgagcgtc agacccgta gaaaagatca aaggatcttc      2580

ttgagatcct ttttttctgc gcgtaatctg ctgcttgcaa acaaaaaaac caccgctacc     2640

agcggtggtt tgtttgccgg atcaagagct accaactctt tttccgaagg taactggctt     2700

cagcagagcg cagataccaa atactgtcct tctagtgtag ccgtagttag gccaccactt     2760
```

```
caagaactct gtagcaccgc ctacatacct cgctctgcta atcctgttac cagtggctgc   2820

tgccagtggc gataagtcgt gtcttaccgg gttggactca agacgatagt taccggataa   2880

ggcgcagcgg tcgggctgaa cggggggttc gtgcacacag cccagcttgg agcgaacgac   2940

ctacaccgaa ctgagatacc tacagcgtga gctatgagaa agcgccacgc ttcccgaagg   3000

gagaaaggcg gacaggtatc cggtaagcgg cagggtcgga acaggagagc gcacgaggga   3060

gcttccaggg ggaaacgcct ggtatcttta tagtcctgtc gggtttcgcc acctctgact   3120

tgagcgtcga ttttgtgat gctcgtcagg ggggcggagc ctatggaaaa acgccagcaa   3180

cgcggccttt ttacggttcc tggccttttg ctggcctttt gctcacatgt tctttcctgc   3240

gttatcccct gattctgtgg ataaccgtat taccgctagc caggaagagt ttgtagaaac   3300

gcaaaaaggc catccgtcag gatggccttc tgcttagttt gatgcctggc agtttatggc   3360

gggcgtcctg cccgccaccc tccgggccgt tgcttcacaa cgttcaaatc cgctcccggc   3420

ggatttgtcc tactcaggag agcgttcacc gacaaacaac agataaaacg aaaggcccag   3480

tcttccgact gagcctttcg ttttatttga tgcctggcag ttccctactc tcgcgttaac   3540

gctagcatgg atctcgggcc ccaaataatg attttatttt gactgatagt gacctgttcg   3600

ttgcaacaaa ttgatgagca atgctttttt ataatgccaa ctttgtacaa aaaagctgaa   3660

cgagaaacgt aaaatgatat aaatatcaat atattaaatt agattttgca taaaaaacag   3720

actacataat actgtaaaac acaacatatc cagtcactat gaatcaacta cttagatggt   3780

attagtgacc tgtagtcgac cgacagcctt ccaaatgttc ttcgggtgat gctgccaact   3840

tagtcgaccg acagccttcc aaatgttctt ctcaaacgga atcgtcgtat ccagcctact   3900

cgctattgtc ctcaatgccg tattaaatca taaaagaaa taagaaaaag aggtgcgagc   3960

ctcttttttg tgtgacaaaa taaaaacatc tacctattca tatacgctag tgtcatagtc   4020

ctgaaaatca tctgcatcaa gaacaatttc acaactctta tacttttctc ttacaagtcg   4080

ttcggcttca tctggatttt cagcctctat acttactaaa cgtgataaag tttctgtaat   4140

ttctactgta tcgacctgca gactggctgt gtataaggga gcctgacatt tatattcccc   4200

agaacatcag gttaatggcg tttttgatgt cattttcgcg gtggctgaga tcagccactt   4260

cttccccgat aacggagacc ggcacactgg ccatatcggt ggtcatcatg cgccagcttt   4320

catccccgat atgcaccacc gggtaaagtt cacgggagac tttatctgac agcagacgtg   4380

cactggccag ggggatcacc atccgtcgcc cgggcgtgtc aataatatca ctctgtacat   4440

ccacaaacag acgataacgg ctctctcttt tataggtgta aaccttaaac tgcatttcac   4500

cagtccctgt tctcgtcagc aaaagagccg ttcatttcaa taaaccgggc gacctcagcc   4560

atcccttcct gattttccgc tttccagcgt tcggcacgca gacgacgggc ttcattctgc   4620
```

atggttgtgc ttaccagacc ggagatattg acatcatata tgccttgagc aactgatagc    4680

tgtcgctgtc aactgtcact gtaatacgct gcttcatagc acacctcttt ttgacatact    4740

tcgggtatac atatcagtat atattcttat accgcaaaaa tcagcgcgca aatacgcata    4800

ctgttatctg gctttttagta agccggatcc acgcgattac gccccgccct gccactcatc    4860

gcagtactgt tgtaattcat taagcattct gccgacatgg aagccatcac agacggcatg    4920

atgaacctga atcgccagc    4939


<210>  162

<211>  5156

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDONR206

<220>

<221>  misc_feature

<222>  (1102)..(1102)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<220>

<221>  misc_feature

<222>  (3080)..(3080)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<400>  162
cggcattgag gacaatagcg agtaggctgg atacgacgat tccgtttgag aagaacattt    60

ggaaggctgt cggtcgacta caggtcacta ataccatcta agtagttgaa tcatagtgac    120

tggatatgtt gtgttttaca gtattatgta gtctgttttt tatgcaaaat ctaatttaat    180

atattgatat ttatatcatt ttacgtttct cgttcagctt ttttgtacaa agttggcatt    240

ataaaaaagc attgcttatc aatttgttgc aacgaacagg tcactatcag tcaaaataaa    300

atcattattt ggggcccgag atccatgcta gcggtaatac ggttatccac agaatcaggg    360

gataacgcag gaaagaacat gtgagcaaaa ggccagcaaa aggccaggaa ccgtaaaaag    420

```
gccgcgttgc tggcgttttt ccataggctc cgccccctg acgagcatca caaaaatcga      480

cgctcaagtc agaggtggcg aaacccgaca ggactataaa gataccaggc gtttcccct      540

ggaagctccc tcgtgcgctc tcctgttccg accctgccgc ttaccggata cctgtccgcc      600

tttctccctt cgggaagcgt ggcgctttct catagctcac gctgtaggta tctcagttcg      660

gtgtaggtcg ttcgctccaa gctgggctgt gtgcacgaac cccccgttca gcccgaccgc      720

tgcgccttat ccggtaacta tcgtcttgag tccaacccgg taagacacga cttatcgcca      780

ctggcagcag ccactggtaa caggattagc agagcgaggt atgtaggcgg tgctacagag      840

ttcttgaagt ggtggcctaa ctacggctac actagaagga cagtatttgg tatctgcgct      900

ctgctgaagc cagttacctt cggaaaaaga gttggtagct cttgatccgg caaacaaacc      960

accgctggta gcggtggttt ttttgtttgc aagcagcaga ttacgcgcag aaaaaaagga     1020

tctcaagaag atcctttgat cttttctacg gggtctgacg ctcagtggaa cgaaaactca     1080

cgttaaggga ttttggtcat gncgccgtcc cgtcaagtca gcgtaatgct ctgccagtgt     1140

tacaaccaat taaccaattc tgattagaaa aactcatcga gcatcaaatg aaactgcaat     1200

ttattcatat caggattatc aataccatat ttttgaaaaa gccgtttctg taatgaagga     1260

gaaaactcac cgaggcagtt ccataggatg gcaagatcct ggtatcggtc tgcgattccg     1320

actcgtccaa catcaataca acctattagc cgaggtcttc cgatctcctg aagccagggc     1380

agatccgtgc acagcacctt gccgtagaag aacagcaagg ccgccaatgc ctgacgatgc     1440

gtggagaccg aaaccttgcg ctcgttcgcc agccaggaca gaaatgcctc gacttcgctg     1500

ctgcccaagg ttgccgggtg acgcacaccg tggaaacgga tgaaggcacg aacccagttg     1560

acataagcct gttcggttcg taaactgtaa tgcaagtagc gtatgcgctc acgcaactgg     1620

tccagaacct tgaccgaacg cagcggtggt aacggcgcag tggcggtttt catggcttgt     1680

tatgactgtt tttttgtaca gtctatgcct cgggcatcca agcagcaagc gcgttacgcc     1740

gtgggtcgat gtttgatgtt atggagcagc aacgatgtta cgcagcagca acgatgttac     1800

gcagcagggc agtcgcccta aaacaaagtt aggtggctca agtatgggca tcattcgcac     1860

atgtaggctc ggccctgacc aagtcaaatc catgcgggct gctcttgatc ttttcggtcg     1920

tgagttcgga gacgtagcca cctactccca acatcagccg gactccgatt acctcgggaa     1980

cttgctccgt agtaagacat tcatcgcgct tgctgccttc gaccaagaag cggttgttgg     2040

cgctctcgcg gcttacgttc tgcccaggtt tgagcagccg cgtagtgaga tctatatcta     2100

tgatctcgca gtctccggcg agcaccggag gcagggcatt gccaccgcgc tcatcaatct     2160

cctcaagcat gaggccaacg cgcttggtgc ttatgtgatc tacgtgcaag cagattacgg     2220

tgacgatccc gcagtggctc tctatacaaa gttgggcata cgggaagaag tgatgcactt     2280
```

```
tgatatcgac ccaagtaccg ccacctaaca attcgttcaa gccgagatcg gcttcccggc    2340

ctaatttccc ctcgtcaaaa ataaggttat caagtgagaa atcaccatga gtgacgactg    2400

aatccggtga gaatggcaaa agcgtatgca tttctttcca gacttgttca acaggccagc    2460

cattacgctc gtcatcaaaa tcactcgcat caaccaaacc gttattcatt cgtgattgcg    2520

cctgagcgag acgaaatacg cgatcgctgt taaaaggaca attacaaaca ggaatcgaat    2580

gcaaccggcg caggaacact gccagcgcat caacaatatt ttcacctgaa tcaggatatt    2640

cttctaatac ctggaatgct gttttcccgc ggatcgcagt ggtgagtaac catgcatcat    2700

caggagtacg gataaaatgc ttgatggtcg gaagaggcat aaattccgtc agccagttta    2760

gtctgaccat ctcatctgta acatcattgg caacgctacc tttgccatgt ttcagaaaca    2820

actctggcgc atcgggcttc ccatacaatc gaaagattgt cgcacctgat tgcccgacat    2880

tatcgcgagc ccatttatac ccatataaat cagcatccat gttggaattt aatcgcggcc    2940

tccagcaaga cgtttcccgt tgaatatggc tcataacacc ccttgtatta ctgtttatgt    3000

aagcagacag ttttattgtt catgatgata tatttttatc ttgtgcaatg taacatcaga    3060

gattttgaga cacgggcccn gcgcactgca gctggatcgg caaataatga ttttattttg    3120

actgatagtg acctgttcgt tgcaacaaat tgataagcaa tgcttttttta taatgccaac    3180

tttgtacaag aaagctgaac gagaaacgta aaatgatata aatatcaata tattaaatta    3240

gattttgcat aaaaaacaga ctacataata ctgtaaaaca caacatatcc agtcactatg    3300

attcaactac ttagatggta ttagtgacct gtagtcgact aagttggcag catcacccga    3360

cgcactttgc gccgaataaa tacctgtgac ggaagatcac ttcgcagaat aaataaatcc    3420

tggtgtccct gttgataccg ggaagccctg ggccaacttt tggcgaaaat gagacgttga    3480

tcggcacgta agaggttcca actttcacca taatgaaata agatcactac cgggcgtatt    3540

ttttgagtta tcgagatttt caggagctaa ggaagctaaa atggagaaaa aaatcactgg    3600

atataccacc gttgatatat cccaatggca tcgtaaagaa cattttgagg catttcagtc    3660

agttgctcaa tgtacctata accagaccgt tcagctggat attacggcct ttttaaagac    3720

cgtaaagaaa aataagcaca gtttttatcc ggcctttatt cacattcttg cccgcctgat    3780

gaatgctcat ccggaattcc gtatggcaat gaaagacggt gagctggtga tatgggatag    3840

tgttcaccct tgttacaccg ttttccatga gcaaactgaa acgttttcat cgctctggag    3900

tgaataccac gacgatttcc ggcagtttct acacatatat cgcaagatg tggcgtgtta    3960

cggtgaaaac ctggcctatt tccctaaagg gtttattgag aatatgtttt tcgtctcagc    4020

caatccctgg gtgagtttca ccagttttga tttaaacgtg gccaatatgg acaacttctt    4080

cgcccccgtt ttcaccatgg gcaaatatta tacgcaaggc gacaaggtgc tgatgccgct    4140
```

```
ggcgattcag gttcatcatg ccgtctgtga tggcttccat gtcggcagaa tgcttaatga    4200

attacaacag tactgcgatg agtggcaggg cggggcgtaa acgcgtggat ccggcttact    4260

aaaagccaga taacagtatg cgtatttgcg cgctgatttt tgcggtataa gaatatatac    4320

tgatatgtat acccgaagta tgtcaaaaag aggtgtgcta tgaagcagcg tattacagtg    4380

acagttgaca gcgacagcta tcagttgctc aaggcatata tgatgtcaat atctccggtc    4440

tggtaagcac aaccatgcag aatgaagccc gtcgtctgcg tgccgaacgc tggaaagcgg    4500

aaaatcagga agggatggct gaggtcgccc ggtttattga aatgaacggc tcttttgctg    4560

acgagaacag ggactggtga aatgcagttt aaggtttaca cctataaaag agagagccgt    4620

tatcgtctgt ttgtggatgt acagagtgat attattgaca cgcccgggcg acggatggtg    4680

atccccctgg ccagtgcacg tctgctgtca gataaagtct cccgtgaact ttacccggtg    4740

gtgcatatcg gggatgaaag ctggcgcatg atgaccaccg atatggccag tgtgccggtc    4800

tccgttatcg gggaagaagt ggctgatctc agccaccgcg aaaatgacat caaaaacgcc    4860

attaacctga tgttctgggg aatataaatg tcaggctccg ttatacacag ccagtctgca    4920

ggtcgataca gtagaaatta cagaaacttt atcacgttta gtaagtatag aggctgaaaa    4980

tccagatgaa gccgaacgac ttgtaagaga aaagtataag agttgtgaaa ttgttcttga    5040

tgcagatgat tttcaggact atgacactag catatatgaa taggtagatg tttttatttt    5100

gtcacacaaa aaagaggctc gcacctcttt ttcttatttc tttttatgat ttaata        5156
```

<210> 163

<211> 21

<212> DNA

<213> Artificial Sequence


<220>

<223> attR1 Reading Frame A

<400> 163
atcacaagtt tgtacaaaaa a                                                       21


<210> 164

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> attR1 Reading Frame B

<400> 164
atcaacaagt ttgtacaaaa aa                                      22

<210> 165

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> attR1 Reading Frame C

<400> 165
atcaaacaag tttgtacaaa aaa                                     23

<210> 166

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> attR2 Reading Frame A

<400> 166
tttcttgtac aaagtggtga t                                       21

<210> 167

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> attR2 Reading Frame B

<400> 167
tttcttgtac aaagtggttg at                                      22

<210> 168

<211> 23

<212> DNA

<213> Artificial Sequence


<220>

<223> attR2 Reading Frame C

<400> 168
tttcttgtac aaagtggttc gat                                       23


<210> 169

<211> 23

<212> DNA

<213> Artificial Sequence


<220>

<223> attR1 Reading Frame C (Alternative B)

<400> 169
atcaaacaag tttgtacaaa aaa                                       23


<210> 170

<211> 23

<212> DNA

<213> Artificial Sequence


<220>

<223> attR2 Reading Frame C (Alternative B)

<400> 170
tttcttgtac aaagtggttt gat                                       23


<210> 171

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223>  attR1 Reading Frame A Cassette

<220>

<221>  misc_feature

<222>  (1)..(6)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<400>  171
nnnnnnatca caagtttgta caaaaaagct                                          30


<210>  172

<211>  33

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attR1 Reading Frame B Cassette

<220>

<221>  misc_feature

<222>  (1)..(8)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<400>  172
nnnnnnnnat caacaagttt gtacaaaaaa gct                                      33


<210>  173

<211>  33

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  attR1 Reading Frame C Cassette

<220>

<221> misc_feature

<222> (1)..(7)

<223> 'n' can be any nucleotide (A, T, C, G or U)


<400> 173
nnnnnnnatc aaacaagttt gtacaaaaaa gct                                33


<210> 174

<211> 4554

<212> DNA

<213> Artificial Sequence


<220>

<223> prfC Parent III

<220>

<221> gene

<222> (286)..(410)

<223> attR1


<220>

<221> gene

<222> (660)..(1319)

<223> CmR


<220>

<221> gene

<222> (1439)..(1523)

<223> inactivated ccdA


<220>

<221> gene

<222> (1661)..(1966)

<223>    ccdB

<220>

<221>    gene

<222>    (2007)..(2131)

<223>    attR2

<220>

<221>    gene

<222>    (2753)..(3613)

<223>    amp

<400>    174
```
gcgcccaata cgcaaaccgc ctctccccgc gcgttggccg attcattaat gcagctggca      60

cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttagct     120

cactcattag gcaccccagg ctttacactt tatgcttccg gctcgtatgt tgtgtggaat     180

tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg ccaagcttgc     240

atgcctgcag gtcgactcta gaggatcccc gggtaccgat atcaaacaag tttgtacaaa     300

aaagctgaac gagaaacgta aaatgatata aatatcaata tattaaatta gattttgcat     360

aaaaaacaga ctacataata ctgtaaaaca acacatatcc agtcactatg gcggccgcta     420

agttggcagc atcacccgac gcactttgcg ccgaataaat acctgtgacg gaagatcact     480

tcgcagaata aataaatcct ggtgtccctg ttgataccgg gaagccctgg ccaacttttt     540

ggcgaaaatg agacgttgat cggcacgtaa gaggttccaa ctttcaccat aatgaaataa     600

gatcactacc gggcgtattt tttgagttat cgagattttc aggagctaag gaagctaaaa     660

tggagaaaaa aatcactgga tataccaccg ttgatatatc ccaatggcat cgtaaagaac     720

attttgaggc atttcagtca gttgctcaat gtacctataa ccagaccgtt cagctggata     780

ttacggcctt tttaaagacc gtaaagaaaa ataagcacaa gttttatccg gcctttattc     840

acattcttgc ccgcctgatg aatgctcatc cggaattccg tatggcaatg aaagacggtg     900

agctggtgat atgggatagt gttcaccctt gttacaccgt tttccatgag caaactgaaa     960

cgttttcatc gctctggagt gaataccacg acgatttccg gcagtttcta cacatatatt    1020

cgcaagatgt ggcgtgttac ggtgaaaacc tggcctattt ccctaaaggg tttattgaga    1080

atatgttttt cgtctcagcc aatccctggg tgagtttcac cagttttgat ttaaacgtgg    1140
```

```
ccaatatgga caacttcttc gcccccgttt tcaccatggg caaatattat acgcaaggcg   1200

acaaggtgct gatgccgctg gcgattcagg ttcatcatgc cgtctgtgat ggcttccatg   1260

tcggcagaat gcttaatgaa ttacaacagt actgcgatga gtggcagggc ggggcgtaat   1320

ctagaggatc cggcttacta aaagccagat aacagtatgc gtatttgcgc gctgattttt   1380

gcggtataag aatatatact gatatgtata cccgaagtat gtcaaaaaga ggtgtgctat   1440

gaagcagcgt attacagtga cagttgacag cgacagctat cagttgctca aggcatatat   1500

gatgtcaata tctccggtct ggtaagcaca accatgcaga atgaagcccg tcgtctgcgt   1560

gccgaacgct ggaaagcgga aaatcaggaa gggatggctg aggtcgcccg gtttattgaa   1620

atgaacggct cttttgctga cgagaacagg gactggtgaa atgcagttta aggtttacac   1680

ctataaaaga gagagccgtt atcgtctgtt tgtggatgta cagagtgata ttattgacac   1740

gcccgggcga cggatggtga tccccctggc cagtgcacgt ctgctgtcag ataaagtctc   1800

ccgtgaactt tacccggtgg tgcatatcgg ggatgaaagc tggcgcatga tgaccaccga   1860

tatggccagt gtgccggtct ccgttatcgg ggaagaagtg gctgatctca gccaccgcga   1920

aaatgacatc aaaaacgcca ttaacctgat gttctgggga atataaatgt caggctccgt   1980

tatacacagc cagtctgcag gtcgaccata gtgactggat atgttgtgtt ttacagtatt   2040

atgtagtctg tttttatgc aaaatctaat ttaatatatt gatatttata tcattttacg   2100

tttctcgttc agctttcttg tacaaagtgg ttcgatatcg gtaccgagct cgaattcact   2160

ggccgtcgtt ttacaacgtc gtgactggga aaaccctggc gttacccaac ttaatcgcct   2220

tgcagcacat ccccctttcg ccagctggcg taatagcgaa gaggcccgca ccgatcgccc   2280

ttcccaacag ttgcgcagcc tgaatggcga atggcgcctg atgcggtatt ttctccttac   2340

gcatctgtgc ggtatttcac accgcatatg gtgcactctc agtacaatct gctctgatgc   2400

cgcatagtta agccagcccc gacacccgcc aacacccgct gacgcgccct gacgggcttg   2460

tctgctcccg gcatccgctt acagacaagc tgtgaccgtc tccgggagct gcatgtgtca   2520

gaggttttca ccgtcatcac cgaaacgcgc gagacgaaag ggcctcgtga tacgcctatt   2580

tttataggtt aatgtcatga taataatggt ttcttagacg tcaggtggca cttttcgggg   2640

aaatgtgcgc ggaacccta tttgtttatt tttctaaata cattcaaata tgtatccgct   2700

catgagacaa taaccctgat aaatgcttca ataatattga aaaggaaga gtatgagtat   2760

tcaacatttc cgtgtcgccc ttattccctt ttttgcggca ttttgccttc ctgttttgc   2820

tcacccagaa acgctggtga agtaaaaga tgctgaagat cagttgggtg cacgagtggg   2880

ttacatcgaa ctggatctca acagcggtaa gatccttgag agttttcgcc ccgaagaacg   2940

ttttccaatg atgagcactt ttaaagttct gctatgtggc gcggtattat cccgtattga   3000
```

```
cgccgggcaa gagcaactcg gtcgccgcat acactattct cagaatgact tggttgagta    3060

ctcaccagtc acagaaaagc atcttacgga tggcatgaca gtaagagaat tatgcagtgc    3120

tgccataacc atgagtgata acactgcggc caacttactt ctgacaacga tcggaggacc    3180

gaaggagcta accgcttttt tgcacaacat gggggatcat gtaactcgcc ttgatcgttg    3240

ggaaccggag ctgaatgaag ccataccaaa cgacgagcgt gacaccacga tgcctgtagc    3300

aatggcaaca acgttgcgca aactattaac tggcgaacta cttactctag cttcccggca    3360

acaattaata gactggatgg aggcggataa agttgcagga ccacttctgc gctcggccct    3420

tccggctggc tggtttattg ctgataaatc tggagccggt gagcgtgggt ctcgcggtat    3480

cattgcagca ctggggccag atggtaagcc ctcccgtatc gtagttatct acacgacggg    3540

gagtcaggca actatggatg aacgaaatag acagatcgct gagataggtg cctcactgat    3600

taagcattgg taactgtcag accaagttta ctcatatata ctttagattg atttaaaact    3660

tcatttttaa tttaaaagga tctaggtgaa gatccttttt gataatctca tgaccaaaat    3720

cccttaacgt gagttttcgt tccactgagc gtcagacccc gtagaaaaga tcaaaggatc    3780

ttcttgagat cctttttttc tgcgcgtaat ctgctgcttg caaacaaaaa aaccaccgct    3840

accagcggtg gtttgtttgc cggatcaaga gctaccaact ctttttccga aggtaactgg    3900

cttcagcaga gcgcagatac caaatactgt ccttctagtg tagccgtagt taggccacca    3960

cttcaagaac tctgtagcac cgcctacata cctcgctctg ctaatcctgt taccagtggc    4020

tgctgccagt ggcgataagt cgtgtcttac cgggttggac tcaagacgat agttaccgga    4080

taaggcgcag cggtcgggct gaacgggggg ttcgtgcaca gcccagct tggagcgaac    4140

gacctacacc gaactgagat acctacagcg tgagctatga gaaagcgcca cgcttcccga    4200

agggagaaag gcggacaggt atccggtaag cggcagggtc ggaacaggag agcgcacgag    4260

ggagcttcca gggggaaacg cctggtatct ttatagtcct gtcgggtttc gccacctctg    4320

acttgagcgt cgatttttgt gatgctcgtc agggggcgg agcctatgga aaaacgccag    4380

caacgcggcc tttttacggt tcctggcctt ttgctggcct tttgctcaca tgttctttcc    4440

tgcgttatcc cctgattctg tggataaccg tattaccgcc tttgagtgag ctgataccgc    4500

tcgccgcagc cgaacgaccg agcgcagcga gtcagtgagc gaggaagcgg aaga    4554
```

<210> 175

<211> 7141

<212> DNA

<213> Artificial Sequence

<220>

<223>   pDEST28

<400>   175
```
atgcatgtcg ttacataact tacggtaaat ggcccgcctg gctgaccgcc caacgacccc         60

cgcccattga cgtcaataat gacgtatgtt cccatagtaa cgccaatagg gactttccat        120

tgacgtcaat gggtggagta tttacggtaa actgcccact tggcagtaca tcaagtgtat        180

catatgccaa gtacgccccc tattgacgtc aatgacggta aatggcccgc ctggcattat        240

gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcatc        300

gctattacca tggtgatgcg gttttggcag tacatcaatg ggcgtggata gcggtttgac        360

tcacggggat ttccaagtct ccaccccatt gacgtcaatg ggagtttgtt ttggcaccaa        420

aatcaacggg actttccaaa atgtcgtaac aactccgccc cattgacgca atgggcggt         480

aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc        540

cctatcagtg atagagatcg tcgacgagct cgtttagtga accgtcagat cgcctggaga        600

cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggact        660

ctagaggatc cctaccggtg atatcctcga gcccatcaac aagtttgtac aaaaaagctg        720

aacgagaaac gtaaaatgat ataaatatca atatattaaa ttagattttg cataaaaaac        780

agactacata atactgtaaa acacaacata tccagtcact atggcggccg cattaggcac        840

cccaggcttt acactttatg cttccggctc gtataatgtg tggattttga gttaggatcc        900

ggcgagattt tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac        960

cgttgatata tcccaatggc atcgtaaaga acattttgag gcatttcagt cagttgctca       1020

atgtacctat aaccagaccg ttcagctgga tattacggcc ttttttaaaga ccgtaaagaa      1080

aaataagcac aagtttatc cggcctttat tcacattctt gcccgcctga tgaatgctca        1140

tccggaattc cgtatggcaa tgaaagacgg tgagctggtg atatgggata gtgttcaccc        1200

ttgttacacc gttttccatg agcaaactga acgtttttca tcgctctgga gtgaatacca       1260

cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtgtt acggtgaaaa       1320

cctggcctat ttccctaaag ggtttattga gaatatgttt ttcgtctcag ccaatccctg       1380

ggtgagtttc accagttttg atttaaacgt ggccaatatg gacaacttct cgcccccgt        1440

tttcaccatg ggcaaatatt atacgcaagg cgacaaggtg ctgatgccgc tggcgattca      1500

ggttcatcat gccgtctgtg atggcttcca tgtcggcaga atgcttaatg aattacaaca      1560

gtactgcgat gagtggcagg gcggggcgta agatctgga tccggcttac taaaagccag       1620

ataacagtat gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta      1680

tacccgaagt atgtcaaaaa gaggtgtgct atgaagcagc gtattacagt gacagttgac      1740
```

```
agcgacagct atcagttgct caaggcatat atgatgtcaa tatctccggt ctggtaagca    1800

caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg ctggaaagcg gaaaatcagg    1860

aagggatggc tgaggtcgcc cggtttattg aaatgaacgg ctcttttgct gacgagaaca    1920

gggactggtg aaatgcagtt taaggtttac acctataaaa gagagagccg ttatcgtctg    1980

tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggt gatccccctg    2040

gccagtgcac gtctgctgtc agataaagtc tcccgtgaac tttacccggt ggtgcatatc    2100

ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccgttatc    2160

ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg    2220

atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca    2280

tagtgactgg atatgttgtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta    2340

atttaatata ttgatattta tatcatttta cgtttctcgt tcagctttct tgtacaaagt    2400

ggttgatggg cggccgctct agagggccca agcttacgcg tgcatgcgac gtcatagctc    2460

tctccctata gtgagtcgta ttataagcta ggcactggcc gtcgttttac aacgtcgtga    2520

ctgggaaaac tgctagcttg ggatctttgt gaaggaacct acttctgtg gtgtgacata    2580

attggacaaa ctacctacag agatttaaag ctctaaggta aatataaaat ttttaagtgt    2640

ataatgtgtt aaactagctg catatgcttg ctgcttgaga gttttgctta ctgagtatga    2700

tttatgaaaa tattatacac aggagctagt gattctaatt gtttgtgtat tttagattca    2760

cagtcccaag gctcatttca ggcccctcag tcctcacagt ctgttcatga tcataatcag    2820

ccataccaca ttťgtagagg ttttacttgc tttaaaaaac ctcccacacc tccccctgaa    2880

cctgaaacat aaaatgaatg caattgttgt tgttaacttg tttattgcag cttataatgg    2940

ttacaaataa agcaatagca tcacaaattt cacaaataaa gcattttttt cactgcattc    3000

tagttgtggt ttgtccaaac tcatcaatgt atcttatcat gtctggatcg atcctgcatt    3060

aatgaatcgg ccaacgcgcg gggagaggcg gtttgcgtat tggctggcgt aatagcgaag    3120

aggcccgcac cgatcgccct tcccaacagt tgcgcagcct gaatggcgaa tgggacgcgc    3180

cctgtagcgg cgcattaagc gcggcgggtg tggtggttac gcgcagcgtg accgctacac    3240

ttgccagcgc cctagcgccc gctcctttcg ctttcttccc ttcctttctc gccacgttcg    3300

ccggctttcc ccgtcaagct ctaaatcggg ggctcccttt agggttccga tttagtgctt    3360

tacggcacct cgaccccaaa aaacttgatt agggtgatgg ttcacgtagt gggccatcgc    3420

cctgatagac ggtttttcgc cctttgacgt tggagtccac gttctttaat agtggactct    3480

tgttccaaac tggaacaaca ctcaacccta tctcggtcta ttcttttgat ttataaggga    3540

ttttgccgat ttcggcctat tggttaaaaa atgagctgat ttaacaaata tttaacgcga    3600
```

```
attttaacaa aatattaacg tttacaattt cgcctgatgc ggtattttct ccttacgcat    3660

ctgtgcggta tttcacaccg catacgcgga tctgcgcagc accatggcct gaaataacct    3720

ctgaaagagg aacttggtta ggtaccttct gaggcggaaa gaaccagctg tggaatgtgt    3780

gtcagttagg gtgtggaaag tccccaggct ccccagcagg cagaagtatg caaagcatgc    3840

atctcaatta gtcagcaacc aggtgtggaa agtccccagg ctccccagca ggcagaagta    3900

tgcaaagcat gcatctcaat tagtcagcaa ccatagtccc gcccctaact ccgcccatcc    3960

cgcccctaac tccgcccagt tccgcccatt ctccgcccca tggctgacta atttttttta    4020

tttatgcaga ggccgaggcc gcctcggcct ctgagctatt ccagaagtag tgaggaggct    4080

tttttggagg cctaggcttt tgcaaaaagc ttgattcttc tgacacaaca gtctcgaact    4140

taagaccatg gccaagcctt tgtctcaaga agaatccacc ctcattgaaa gagcaacggc    4200

tacaatcaac agcatcccca tctctgaaga ctacagcgtc gccagcgcag ctctctctag    4260

cgacggccgc atcttcactg gtgtcaatgt atatcatttt actgggggac cttgtgcaga    4320

actcgtggtg ctgggcactg ctgctgctgc ggcagctggc aacctgactt gtatcgtcgc    4380

gatcggaaat gagaacaggg gcatcttgag cccctgcgga cggtgccgac aggtgcttct    4440

cgatctgcat cctgggatca aagccatagt gaaggacagt gatggacagc cgacggcagt    4500

tgggattcgt gaattgctgc cctctggtta tgtgtgggag ggctaagcac ttcgtggccg    4560

agttcgaaat gaccgaccaa gcgacgccca acctgccatc acgatggccg caataaaata    4620

tctttatttt cattacatct gtgtgttggt tttttgtgtg aatcgatagc gataaggatc    4680

cgcgtatggt gcactctcag tacaatctgc tctgatgccg catagttaag ccagccccga    4740

cacccgccaa cacccgctga cgcgccctga cgggcttgtc tgctcccggc atccgcttac    4800

agacaagctg tgaccgtctc cgggagctgc atgtgtcaga ggttttcacc gtcatcaccg    4860

aaacgcgcga gacgaaaggg cctcgtgata cgcctatttt tataggttaa tgtcatgata    4920

ataatggttt cttagacgtc aggtggcact tttcggggaa atgtgcgcgg aacccctatt    4980

tgtttatttt tctaaataca ttcaaatatg tatccgctca tgagacaata accctgataa    5040

atgcttcaat aatattgaaa aaggaagagt atgagtattc aacatttccg tgtcgccctt    5100

attcctttt ttgcggcatt ttgccttcct gtttttgctc acccagaaac gctggtgaaa    5160

gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt acatcgaact ggatctcaac    5220

agcggtaaga tccttgagag ttttcgcccc gaagaacgtt ttccaatgat gagcactttt    5280

aaagttctgc tatgtggcgc ggtattatcc cgtattgacg ccgggcaaga gcaactcggt    5340

cgccgcatac actattctca gaatgacttg gttgagtact caccagtcac agaaaagcat    5400

cttacggatg gcatgacagt aagagaatta tgcagtgctg ccataaccat gagtgataac    5460
```

```
actgcggcca acttacttct gacaacgatc ggaggaccga aggagctaac cgctttttg    5520

cacaacatgg gggatcatgt aactcgcctt gatcgttggg aaccggagct gaatgaagcc    5580

ataccaaacg acgagcgtga caccacgatg cctgtagcaa tggcaacaac gttgcgcaaa    5640

ctattaactg gcgaactact tactctagct tcccggcaac aattaataga ctggatggag    5700

gcggataaag ttgcaggacc acttctgcgc tcggcccttc cggctggctg gtttattgct    5760

gataaatctg gagccggtga gcgtgggtct cgcggtatca ttgcagcact ggggccagat    5820

ggtaagccct cccgtatcgt agttatctac acgacgggga gtcaggcaac tatggatgaa    5880

cgaaatagac agatcgctga dataggtgcc tcactgatta agcattggta actgtcagac    5940

caagtttact catatatact ttagattgat ttaaaacttc atttttaatt taaaaggatc    6000

taggtgaaga tcctttttga taatctcatg accaaaatcc cttaacgtga gttttcgttc    6060

cactgagcgt cagacccgt agaaaagatc aaaggatctt cttgagatcc ttttttctg      6120

cgcgtaatct gctgcttgca acaaaaaaa ccaccgctac cagcggtggt ttgtttgccg      6180

gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca    6240

aatactgtcc ttctagtgta gccgtagtta ggccaccact tcaagaactc tgtagcaccg    6300

cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg    6360

tgtcttaccg ggttggactc aagacgatag ttaccggata aggcgcagcg tcgggctga     6420

acggggggtt cgtgcacaca gcccagcttg gagcgaacga cctacaccga actgagatac    6480

ctacagcgtg agcattgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggtat    6540

ccggtaagcg gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc    6600

tggtatcttt atagtcctgt cgggtttcgc cacctctgac ttgagcgtcg attttgtga     6660

tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt tttacggttc    6720

ctggcctttt gctggccttt tgctcacatg ttcttcctg cgttatcccc tgattctgtg     6780

gataaccgta ttaccgcctt tgagtgagct gataccgctc gccgcagccg aacgaccgag    6840

cgcagcgagt cagtgagcga ggaagcggaa gagcgcccaa tacgcaaacc gcctctcccc    6900

gcgcgttggc cgattcatta atgcagagct tgcaattcgc gcgttttca atattattga     6960

agcatttatc agggttattg tctcatgagc ggatacatat ttgaatgtat ttagaaaaat    7020

aaacaaatag gggttccgcg cacatttccc cgaaaagtgc cacctgacgt ctaagaaacc    7080

attattatca tgacattaac ctataaaaat aggcgtagta cgaggccctt tcactcatta    7140

g                                                                      7141
```

<210> 176

<211> 7156

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST29

<400> 176

```
atgcatgtcg ttacataact tacggtaaat ggcccgcctg gctgaccgcc caacgacccc    60

cgcccattga cgtcaataat gacgtatgtt cccatagtaa cgccaatagg gactttccat   120

tgacgtcaat gggtggagta tttacggtaa actgcccact tggcagtaca tcaagtgtat   180

catatgccaa gtacgccccc tattgacgtc aatgacggta aatggcccgc ctggcattat   240

gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcatc   300

gctattacca tggtgatgcg gttttggcag tacatcaatg ggcgtggata gcggtttgac   360

tcacggggat ttccaagtct ccaccccatt gacgtcaatg ggagtttgtt ttggcaccaa   420

aatcaacggg actttccaaa atgtcgtaac aactccgccc cattgacgca atgggcggt    480

aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc   540

cctatcagtg atagagatcg tcgacgagct cgtttagtga accgtcagat cgcctggaga   600

cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggacc   660

atggcgtact accatcacca tcaccatcac accggtgata tcctcgagcc catcacaagt   720

ttgtacaaaa aagctgaacg agaaacgtaa aatgatataa atatcaatat attaaattag   780

attttgcata aaaaacagac tacataatac tgtaaaacac aacatatcca gtcactatgg   840

cggccgcatt aggcaccccca ggctttacac tttatgcttc cggctcgtat aatgtgtgga   900

ttttgagtta ggatccggcg agattttcag gagctaagga agctaaaatg gagaaaaaaa   960

tcactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat  1020

ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt  1080

taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc  1140

gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacggtgag ctggtgatat  1200

gggatagtgt tcacccttgt tacaccgttt tccatgagca aactgaaacg ttttcatcgc  1260

tctggagtga ataccacgac gatttccggc agtttctaca catatattcg caagatgtgg  1320

cgtgttacgg tgaaaacctg gcctatttcc ctaaagggtt tattgagaat atgttttcg   1380

tctcagccaa tccctgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca  1440

acttcttcgc ccccgttttc accatgggca atattatac gcaaggcgac aaggtgctga   1500

tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc  1560
```

```
ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg    1620

gcttactaaa agccagataa cagtatgcgt atttgcgcgc tgatttttgc ggtataagaa    1680

tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat    1740

tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatatc    1800

tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg    1860

aaagcggaaa tcaggaagg gatggctgag gtcgcccggt ttattgaaat gaacggctct    1920

tttgctgacg agaacaggga ctggtgaaat gcagtttaag gtttacacct ataaaagaga    1980

gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg    2040

gatggtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta    2100

cccggtggtg catatcgggg atgaaagctg gcgcatgatg accaccgata tggccagtgt    2160

gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa    2220

aaacgccatt aacctgatgt tctggggaat ataaatgtca ggctccgtta tacacagcca    2280

gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctgtt    2340

ttttatgcaa aatctaattt aatatattga tatttatatc attttacgtt tctcgttcag    2400

ctttcttgta caaagtggtg atgggcggcc gctctagagg gcccaagctt acgcgtgcat    2460

gcgacgtcat agctctctcc ctatagtgag tcgtattata agctaggcac tggccgtcgt    2520

tttacaacgt cgtgactggg aaaactgcta gcttgggatc tttgtgaagg aaccttactt    2580

ctgtggtgtg acataattgg acaaactacc tacagagatt taaagctcta aggtaaatat    2640

aaaatttta agtgtataat gtgttaaact agctgcatat gcttgctgct tgagagtttt    2700

gcttactgag tatgatttat gaaaatatta tacacaggag ctagtgattc taattgtttg    2760

tgtattttag attcacagtc ccaaggctca tttcaggccc ctcagtcctc acagtctgtt    2820

catgatcata atcagccata ccacatttgt agaggtttta cttgctttaa aaaacctccc    2880

acacctcccc ctgaacctga aacataaaat gaatgcaatt gttgttgtta acttgtttat    2940

tgcagcttat aatggttaca aataaagcaa tagcatcaca aatttcacaa ataaagcatt    3000

ttttcactg cattctagtt gtggtttgtc caaactcatc aatgtatctt atcatgtctg    3060

gatcgatcct gcattaatga atcggccaac gcgcggggag aggcggtttg cgtattggct    3120

ggcgtaatag cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg    3180

gcgaatggga cgcgccctgt agcggcgcat taagcgcggc gggtgtggtg gttacgcgca    3240

gcgtgaccgc tacacttgcc agcgccctag cgcccgctcc tttcgctttc ttcccttcct    3300

ttctcgccac gttcgccggc tttccccgtc aagctctaaa tcggggctc cctttagggt    3360

tccgatttag tgctttacgg cacctcgacc ccaaaaaact tgattagggt gatggttcac    3420
```

```
gtagtgggcc atcgccctga tagacggttt ttcgcccttt gacgttggag tccacgttct    3480

ttaatagtgg actcttgttc caaactggaa caacactcaa ccctatctcg gtctattctt    3540

ttgatttata agggattttg ccgatttcgg cctattggtt aaaaaatgag ctgatttaac    3600

aaatatttaa cgcgaatttt aacaaaatat taacgtttac aatttcgcct gatgcggtat    3660

tttctcctta cgcatctgtg cggtatttca caccgcatac gcggatctgc gcagcaccat    3720

ggcctgaaat aacctctgaa agaggaactt ggttaggtac cttctgaggc ggaaagaacc    3780

agctgtggaa tgtgtgtcag ttagggtgtg gaaagtcccc aggctcccca gcaggcagaa    3840

gtatgcaaag catgcatctc aattagtcag caaccaggtg tggaaagtcc ccaggctccc    3900

cagcaggcag aagtatgcaa agcatgcatc tcaattagtc agcaaccata gtcccgcccc    3960

taactccgcc catcccgccc ctaactccgc ccagttccgc ccattctccg ccccatggct    4020

gactaatttt ttttatttat gcagaggccg aggccgcctc ggcctctgag ctattccaga    4080

agtagtgagg aggctttttt ggaggcctag gcttttgcaa aaagcttgat tcttctgaca    4140

caacagtctc gaacttaaga ccatggccaa gcctttgtct caagaagaat ccaccctcat    4200

tgaaagagca acggctacaa tcaacagcat ccccatctct gaagactaca gcgtcgccag    4260

cgcagctctc tctagcgacg gccgcatctt cactggtgtc aatgtatatc attttactgg    4320

gggaccttgt gcagaactcg tggtgctggg cactgctgct gctgcggcag ctggcaacct    4380

gacttgtatc gtcgcgatcg gaaatgagaa cagggggcatc ttgagcccct gcggacggtg    4440

ccgacaggtg cttctcgatc tgcatcctgg gatcaaagcc atagtgaagg acagtgatgg    4500

acagccgacg gcagttggga ttcgtgaatt gctgccctct ggttatgtgt gggagggcta    4560

agcacttcgt ggccgagttc gaaatgaccg accaagcgac gcccaacctg ccatcacgat    4620

ggccgcaata aaatatcttt attttcatta catctgtgtg ttggtttttt gtgtgaatcg    4680

atagcgataa ggatccgcgt atggtgcact ctcagtacaa tctgctctga tgccgcatag    4740

ttaagccagc cccgacaccc gccaacaccc gctgacgcgc cctgacgggc ttgtctgctc    4800

ccggcatccg cttacagaca agctgtgacc gtctccggga gctgcatgtg tcagaggttt    4860

tcaccgtcat caccgaaacg cgcgagacga aagggcctcg tgatacgcct attttatag    4920

gttaatgtca tgataataat ggtttcttag acgtcaggtg cactttcg gggaaatgtg    4980

cgcggaaccc ctatttgttt attttctaa atacattcaa atatgtatcc gctcatgaga    5040

caataaccct gataaatgct tcaataatat tgaaaagga agagtatgag tattcaacat    5100

ttccgtgtcg cccttattcc cttttttgcg gcattttgcc ttcctgtttt tgctcaccca    5160

gaaacgctgg tgaaagtaaa agatgctgaa gatcagttgg gtgcacgagt gggttacatc    5220

gaactggatc tcaacagcgg taagatcctt gagagttttc gccccgaaga acgttttcca    5280
```

```
atgatgagca cttttaaagt tctgctatgt ggcgcggtat tatcccgtat tgacgccggg   5340

caagagcaac tcggtcgccg catacactat tctcagaatg acttggttga gtactcacca   5400

gtcacagaaa agcatcttac ggatggcatg acagtaagag aattatgcag tgctgccata   5460

accatgagtg ataacactgc ggccaactta cttctgacaa cgatcggagg accgaaggag   5520

ctaaccgctt ttttgcacaa catgggggat catgtaactc gccttgatcg ttgggaaccg   5580

gagctgaatg aagccatacc aaacgacgag cgtgacacca cgatgcctgt agcaatggca   5640

acaacgttgc gcaaactatt aactggcgaa ctacttactc tagcttcccg gcaacaatta   5700

atagactgga tggaggcgga taaagttgca ggaccacttc tgcgctcggc ccttccggct   5760

ggctggttta ttgctgataa atctggagcc ggtgagcgtg ggtctcgcgg tatcattgca   5820

gcactggggc cagatggtaa gccctcccgt atcgtagtta tctacacgac ggggagtcag   5880

gcaactatgg atgaacgaaa tagacagatc gctgagatag gtgcctcact gattaagcat   5940

tggtaactgt cagaccaagt ttactcatat atactttaga ttgatttaaa acttcatttt   6000

taatttaaaa ggatctaggt gaagatcctt tttgataatc tcatgaccaa aatcccttaa   6060

cgtgagtttt cgttccactg agcgtcagac cccgtagaaa agatcaaagg atcttcttga   6120

gatccttttt ttctgcgcgt aatctgctgc ttgcaaacaa aaaaaccacc gctaccagcg   6180

gtggtttgtt tgccggatca agagctacca actctttttc cgaaggtaac tggcttcagc   6240

agagcgcaga taccaaatac tgtccttcta gtgtagccgt agttaggcca ccacttcaag   6300

aactctgtag caccgcctac atacctcgct ctgctaatcc tgttaccagt ggctgctgcc   6360

agtggcgata agtcgtgtct taccgggttg gactcaagac gatagttacc ggataaggcg   6420

cagcggtcgg gctgaacggg gggttcgtgc acacagccca gcttggagcg aacgacctac   6480

accgaactga gatacctaca gcgtgagcat tgagaaagcg ccacgcttcc cgaagggaga   6540

aaggcggaca ggtatccggt aagcggcagg gtcggaacag gagagcgcac gagggagctt   6600

ccagggggaa acgcctggta tctttatagt cctgtcgggt ttcgccacct ctgacttgag   6660

cgtcgatttt tgtgatgctc gtcagggggg cggagcctat ggaaaaacgc cagcaacgcg   6720

gcctttttac ggttcctggc cttttgctgg ccttttgctc acatgttctt tcctgcgtta   6780

tcccctgatt ctgtggataa ccgtattacc gcctttgagt gagctgatac cgctcgccgc   6840

agccgaacga ccgagcgcag cgagtcagtg agcgaggaag cggaagagcg cccaatacgc   6900

aaaccgcctc tccccgcgcg ttggccgatt cattaatgca gagcttgcaa ttcgcgcgtt   6960

tttcaatatt attgaagcat ttatcagggt tattgtctca tgagcggata catatttgaa   7020

tgtatttaga aaaataaaca aataggggtt ccgcgcacat ttccccgaaa agtgccacct   7080

gacgtctaag aaaccattat tatcatgaca ttaacctata aaaataggcg tagtacgagg   7140
```

```
cccttttcact cattag                                              7156

<210>  177

<211>  7544

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST30

<400>  177
atgcatgtcg ttacataact tacggtaaat ggcccgcctg gctgaccgcc caacgacccc      60

cgcccattga cgtcaataat gacgtatgtt cccatagtaa cgccaatagg gactttccat     120

tgacgtcaat gggtggagta tttacggtaa actgcccact tggcagtaca tcaagtgtat     180

catatgccaa gtacgccccc tattgacgtc aatgacggta atggcccgc ctggcattat      240

gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcatc     300

gctattacca tggtgatgcg gttttggcag tacatcaatg ggcgtggata gcggtttgac     360

tcacggggat ttccaagtct ccaccccatt gacgtcaatg ggagtttgtt ttggcaccaa     420

aatcaacggg actttccaaa atgtcgtaac aactccgccc cattgacgca atgggcggt      480

aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc     540

cctatcagtg atagagatcg tcgacgagct cgtttagtga accgtcagat cgcctggaga     600

cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggact     660

ctagaggatc cctaccggtg atatcctcga gcccatcaac aagtttgtac aaaaaagctg     720

aacgagaaac gtaaatgat ataaatatca atatattaaa ttagattttg cataaaaaac      780

agactacata atactgtaaa acacaacata tccagtcact atggcggccg cattaggcac     840

cccaggcttt acactttatg cttccggctc gtataatgtg tggattttga gttaggatcc     900

ggcgagattt tcaggagcta aggaagctaa aatggagaaa aaaatcactg gatataccac     960

cgttgatata tcccaatggc atcgtaaaga acattttgag gcatttcagt cagttgctca    1020

atgtacctat aaccagaccg ttcagctgga tattacggcc tttttaaaga ccgtaaagaa    1080

aaataagcac aagtttttatc cggcctttat tcacattctt gcccgcctga tgaatgctca    1140

tccggaattc cgtatggcaa tgaaagacgg tgagctggtg atatgggata gtgttcaccc    1200

ttgttacacc gttttccatg agcaaactga acgttttca tcgctctgga gtgaatacca    1260

cgacgatttc cggcagtttc tacacatata ttcgcaagat gtggcgtgtt acggtgaaaa    1320
```

```
cctggcctat ttccctaaag ggtttattga gaatatgttt ttcgtctcag ccaatccctg   1380

ggtgagtttc accagttttg atttaaacgt ggccaatatg gacaacttct tcgcccccgt   1440

tttcaccatg ggcaaatatt atacgcaagg cgacaaggtg ctgatgccgc tggcgattca   1500

ggttcatcat gccgtctgtg atggcttcca tgtcggcaga atgcttaatg aattacaaca   1560

gtactgcgat gagtggcagg gcggggcgta aagatctgga tccggcttac taaaagccag   1620

ataacagtat gcgtatttgc gcgctgattt ttgcggtata agaatatata ctgatatgta   1680

tacccgaagt atgtcaaaaa gaggtgtgct atgaagcagc gtattacagt gacagttgac   1740

agcgacagct atcagttgct caaggcatat atgatgtcaa tatctccggt ctggtaagca   1800

caaccatgca gaatgaagcc cgtcgtctgc gtgccgaacg ctggaaagcg gaaaatcagg   1860

aagggatggc tgaggtcgcc cggtttattg aaatgaacgg ctcttttgct gacgagaaca   1920

gggactggtg aaatgcagtt taaggtttac acctataaaa gagagagccg ttatcgtctg   1980

tttgtggatg tacagagtga tattattgac acgcccgggc gacggatggt gatccccctg   2040

gccagtgcac gtctgctgtc agataaagtc tcccgtgaac tttacccggt ggtgcatatc   2100

ggggatgaaa gctggcgcat gatgaccacc gatatggcca gtgtgccggt ctccgttatc   2160

ggggaagaag tggctgatct cagccaccgc gaaaatgaca tcaaaaacgc cattaacctg   2220

atgttctggg gaatataaat gtcaggctcc cttatacaca gccagtctgc aggtcgacca   2280

tagtgactgg atatgttgtg ttttacagta ttatgtagtc tgttttttat gcaaaatcta   2340

atttaatata ttgatattta tatcatttta cgtttctcgt tcagctttct tgtacaaagt   2400

ggttgatggg cggccgctct agagggccca agcttacgcg tgcatgcgac gtcatagctc   2460

tctccctata gtgagtcgta ttataagcta ggcactggcc gtcgttttac aacgtcgtga   2520

ctgggaaaac tgctagcttg ggatctttgt gaaggaacct tacttctgtg gtgtgacata   2580

attggacaaa ctacctacag agatttaaag ctctaaggta aatataaaat ttttaagtgt   2640

ataatgtgtt aaactagctg catatgcttg ctgcttgaga gttttgctta ctgagtatga   2700

tttatgaaaa tattatacac aggagctagt gattctaatt gtttgtgtat tttagattca   2760

cagtcccaag gctcatttca ggcccctcag tcctcacagt ctgttcatga tcataatcag   2820

ccataccaca tttgtagagg ttttacttgc tttaaaaaac ctcccacacc tccccctgaa   2880

cctgaaacat aaaatgaatg caattgttgt tgttaacttg tttattgcag cttataatgg   2940

ttacaaataa agcaatagca tcacaaattt cacaaataaa gcattttttt cactgcattc   3000

tagttgtggt ttgtccaaac tcatcaatgt atcttatcat gtctggatcg atcctgcatt   3060

aatgaatcgg ccaacgcgcg gggagaggcg gtttgcgtat tggctggcgt aatagcgaag   3120

aggcccgcac cgatcgccct tcccaacagt tgcgcagcct gaatggcgaa tgggacgcgc   3180
```

```
cctgtagcgg cgcattaagc gcggcgggtg tggtggttac gcgcagcgtg accgctacac   3240

ttgccagcgc cctagcgccc gctcctttcg ctttcttccc ttcctttctc gccacgttcg   3300

ccggctttcc ccgtcaagct ctaaatcggg ggctcccttt agggttccga tttagtgctt   3360

tacggcacct cgaccccaaa aaacttgatt agggtgatgg ttcacgtagt gggccatcgc   3420

cctgatagac ggtttttcgc cctttgacgt tggagtccac gttctttaat agtggactct   3480

tgttccaaac tggaacaaca ctcaacccta tctcggtcta ttcttttgat ttataaggga   3540

ttttgccgat ttcggcctat tggttaaaaa atgagctgat ttaacaaata tttaacgcga   3600

attttaacaa aatattaacg tttacaattt cgcctgatgc ggtattttct ccttacgcat   3660

ctgtgcggta tttcacaccg catacgcgga tctgcgcagc accatggcct gaaataacct   3720

ctgaaagagg aacttggtta ggtaccttct gaggcggaaa gaaccagctg tggaatgtgt   3780

gtcagttagg gtgtggaaag tccccaggct ccccagcagg cagaagtatg caaagcatgc   3840

atctcaatta gtcagcaacc aggtgtggaa agtccccagg ctccccagca ggcagaagta   3900

tgcaaagcat gcatctcaat tagtcagcaa ccatagtccc gcccctaact ccgcccatcc   3960

cgcccctaac tccgcccagt tccgcccatt ctccgcccca tggctgacta attttttta    4020

tttatgcaga ggccgaggcc gcctcggcct ctgagctatt ccagaagtag tgaggaggct   4080

tttttggagg cctaggcttt tgcaaaaagc ttgattcttc tgacacaaca gtctcgaact   4140

taaggctaga gccaccatga ttgaacaaga tggattgcac gcaggttctc cggccgcttg   4200

ggtggagagg ctattcggct atgactgggc acaacagaca atcggctgct ctgatgccgc   4260

cgtgttccgg ctgtcagcgc aggggcgccc ggttcttttt gtcaagaccg acctgtccgg   4320

tgccctgaat gaactgcagg acgaggcagc gcggctatcg tggctggcca cgacgggcgt   4380

tccttgcgca gctgtgctcg acgttgtcac tgaagcggga agggactggc tgctattggg   4440

cgaagtgccg gggcaggatc tcctgtcatc tcaccttgct cctgccgaga aagtatccat   4500

catggctgat gcaatgcggc ggctgcatac gcttgatccg gctacctgcc cattcgacca   4560

ccaagcgaaa catcgcatcg agcgagcacg tactcggatg gaagccggtc ttgtcgatca   4620

ggatgatctg gacgaagagc atcaggggct cgcgccagcc gaactgttcg ccaggctcaa   4680

ggcgcgcatg cccgacggcg aggatctcgt cgtgacccat ggcgatgcct gcttgccgaa   4740

tatcatggtg gaaaatggcc gcttttctgg attcatcgac tgtggccggc tgggtgtggc   4800

ggaccgctat caggacatag cgttggctac ccgtgatatt gctgaagagc ttggcggcga   4860

atgggctgac cgcttcctcg tgctttacgg tatcgccgct cccgattcgc agcgcatcgc   4920

cttctatcgc cttcttgacg agttcttctg agcgggactc tggggttcga aatgaccgac   4980

caagcgacgc ccaacctgcc atcacgatgg ccgcaataaa atatctttat tttcattaca   5040
```

```
tctgtgtgtt ggttttttgt gtgaatcgat agcgataagg atccgcgtat ggtgcactct   5100

cagtacaatc tgctctgatg ccgcatagtt aagccagccc cgacacccgc caacacccgc   5160

tgacgcgccc tgacgggctt gtctgctccc ggcatccgct tacagacaag ctgtgaccgt   5220

ctccgggagc tgcatgtgtc agaggttttc accgtcatca ccgaaacgcg cgagacgaaa   5280

gggcctcgtg atacgcctat ttttataggt taatgtcatg ataataatgg tttcttagac   5340

gtcaggtggc acttttcggg gaaatgtgcg cggaacccct atttgtttat ttttctaaat   5400

acattcaaat atgtatccgc tcatgagaca ataaccctga taaatgcttc aataatattg   5460

aaaaaggaag agtatgagta ttcaacattt ccgtgtcgcc cttattccct tttttgcggc   5520

attttgcctt cctgtttttg ctcacccaga aacgctggtg aaagtaaaag atgctgaaga   5580

tcagttgggt gcacgagtgg gttacatcga actggatctc aacagcggta agatccttga   5640

gagttttcgc cccgaagaac gttttccaat gatgagcact tttaaagttc tgctatgtgg   5700

cgcggtatta tcccgtattg acgccgggca agagcaactc ggtcgccgca tacactattc   5760

tcagaatgac ttggttgagt actcaccagt cacagaaaag catcttacgg atggcatgac   5820

agtaagagaa ttatgcagtg ctgccataac catgagtgat aacactgcgg ccaacttact   5880

tctgacaacg atcggaggac cgaaggagct aaccgctttt ttgcacaaca tgggggatca   5940

tgtaactcgc cttgatcgtt gggaaccgga gctgaatgaa gccataccaa acgacgagcg   6000

tgacaccacg atgcctgtag caatggcaac aacgttgcgc aaactattaa ctggcgaact   6060

acttactcta gcttcccggc aacaattaat agactggatg gaggcggata agttgcagg   6120

accacttctg cgctcggccc ttccggctgg ctggtttatt gctgataaat ctggagccgg   6180

tgagcgtggg tctcgcggta tcattgcagc actggggcca gatggtaagc cctcccgtat   6240

cgtagttatc tacacgacgg ggagtcaggc aactatggat gaacgaaata gacagatcgc   6300

tgagataggt gcctcactga ttaagcattg gtaactgtca gaccaagttt actcatatat   6360

actttagatt gatttaaaac ttcattttta atttaaaagg atctaggtga agatcctttt   6420

tgataatctc atgaccaaaa tcccttaacg tgagttttcg ttccactgag cgtcagaccc   6480

cgtagaaaag atcaaaggat cttcttgaga tccttttttt ctgcgcgtaa tctgctgctt   6540

gcaaacaaaa aaaccaccgc taccagcggt ggtttgtttg ccggatcaag agctaccaac   6600

tctttttccg aaggtaactg gcttcagcag agcgcagata ccaaatactg tccttctagt   6660

gtagccgtag ttaggccacc acttcaagaa ctctgtagca ccgcctacat acctcgctct   6720

gctaatcctg ttaccagtgg ctgctgccag tggcgataag tcgtgtctta ccgggttgga   6780

ctcaagacga tagttaccgg ataaggcgca gcggtcgggc tgaacggggg gttcgtgcac   6840

acagcccagc ttggagcgaa cgacctacac cgaactgaga tacctacagc gtgagcattg   6900
```

```
agaaagcgcc acgcttcccg aagggagaaa ggcggacagg tatccggtaa gcggcagggt    6960

cggaacagga gagcgcacga gggagcttcc aggggggaaac gcctggtatc tttatagtcc    7020

tgtcgggttt cgccacctct gacttgagcg tcgattttttg tgatgctcgt caggggggcg    7080

gagcctatgg aaaaacgcca gcaacgcggc ctttttacgg ttcctggcct tttgctggcc    7140

ttttgctcac atgttctttc ctgcgttatc ccctgattct gtggataacc gtattaccgc    7200

ctttgagtga gctgataccg ctcgccgcag ccgaacgacc gagcgcagcg agtcagtgag    7260

cgaggaagcg gaagagcgcc caatacgcaa accgcctctc cccgcgcgtt ggccgattca    7320

ttaatgcaga gcttgcaatt cgcgcgtttt tcaatattat tgaagcattt atcagggtta    7380

ttgtctcatg agcggataca tatttgaatg tatttagaaa aataaacaaa taggggttcc    7440

gcgcacattt ccccgaaaag tgccacctga cgtctaagaa accattatta tcatgacatt    7500

aacctataaa aataggcgta gtacgaggcc ctttcactca ttag                      7544
```

```
<210>   178

<211>   7559

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST31

<400>   178
atgcatgtcg ttacataact tacggtaaat ggcccgcctg gctgaccgcc caacgacccc    60

cgcccattga cgtcaataat gacgtatgtt cccatagtaa cgccaatagg gactttccat    120

tgacgtcaat gggtggagta tttacggtaa actgcccact tggcagtaca tcaagtgtat    180

catatgccaa gtacgccccc tattgacgtc aatgacggta atggcccgc ctggcattat    240

gcccagtaca tgaccttatg ggactttcct acttggcagt acatctacgt attagtcatc    300

gctattacca tggtgatgcg gttttggcag tacatcaatg ggcgtggata cggtttgac    360

tcacggggat ttccaagtct ccaccccatt gacgtcaatg ggagtttgtt ttggcaccaa    420

aatcaacggg actttccaaa atgtcgtaac aactccgccc cattgacgca atgggcggt    480

aggcgtgtac ggtgggaggt ctatataagc agagctctcc ctatcagtga tagagatctc    540

cctatcagtg atagagatcg tcgacgagct cgtttagtga accgtcagat cgcctggaga    600

cgccatccac gctgttttga cctccataga agacaccggg accgatccag cctccggacc    660

atggcgtact accatcacca tcaccatcac accggtgata tcctcgagcc catcacaagt    720
```

```
ttgtacaaaa aagctgaacg agaaacgtaa aatgatataa atatcaatat attaaattag    780

attttgcata aaaaacagac tacataatac tgtaaaacac aacatatcca gtcactatgg    840

cggccgcatt aggcacccca ggctttacac tttatgcttc cggctcgtat aatgtgtgga    900

ttttgagtta ggatccggcg agattttcag gagctaagga agctaaaatg gagaaaaaaa    960

tcactggata taccaccgtt gatatatccc aatggcatcg taaagaacat tttgaggcat   1020

ttcagtcagt tgctcaatgt acctataacc agaccgttca gctggatatt acggcctttt   1080

taaagaccgt aaagaaaaat aagcacaagt tttatccggc ctttattcac attcttgccc   1140

gcctgatgaa tgctcatccg gaattccgta tggcaatgaa agacggtgag ctggtgatat   1200

gggatagtgt tcacccttgt tacaccgttt tccatgagca aactgaaacg ttttcatcgc   1260

tctggagtga ataccacgac gatttccggc agtttctaca catatattcg caagatgtgg   1320

cgtgttacgg tgaaaacctg gcctatttcc ctaaagggtt tattgagaat atgttttttcg   1380

tctcagccaa tccctgggtg agtttcacca gttttgattt aaacgtggcc aatatggaca   1440

acttcttcgc ccccgttttc accatgggca aatattatac gcaaggcgac aaggtgctga   1500

tgccgctggc gattcaggtt catcatgccg tctgtgatgg cttccatgtc ggcagaatgc   1560

ttaatgaatt acaacagtac tgcgatgagt ggcagggcgg ggcgtaaacg cgtggatccg   1620

gcttactaaa agccagataa cagtatgcgt atttgcgcgc tgattttttgc ggtataagaa   1680

tatatactga tatgtatacc cgaagtatgt caaaaagagg tgtgctatga agcagcgtat   1740

tacagtgaca gttgacagcg acagctatca gttgctcaag gcatatatga tgtcaatatc   1800

tccggtctgg taagcacaac catgcagaat gaagcccgtc gtctgcgtgc cgaacgctgg   1860

aaagcggaaa tcaggaagg gatggctgag gtcgcccggt ttattgaaat gaacggctct   1920

tttgctgacg agaacaggga ctggtgaaat gcagtttaag gtttacacct ataaaagaga   1980

gagccgttat cgtctgtttg tggatgtaca gagtgatatt attgacacgc ccgggcgacg   2040

gatggtgatc cccctggcca gtgcacgtct gctgtcagat aaagtctccc gtgaacttta   2100

cccggtggtg catatcgggg atgaaagctg cgcatgatg accaccgata tggccagtgt   2160

gccggtctcc gttatcgggg aagaagtggc tgatctcagc caccgcgaaa atgacatcaa   2220

aaacgccatt aacctgatgt ctggggaat ataaatgtca ggctccgtta tacacagcca   2280

gtctgcaggt cgaccatagt gactggatat gttgtgtttt acagtattat gtagtctgtt   2340

ttttatgcaa aatctaattt aatatattga tatttatatc attttacgtt tctcgttcag   2400

ctttcttgta caaagtggtg atgggcggcc gctctagagg gcccaagctt acgcgtgcat   2460

gcgacgtcat agctctctcc ctatagtgag tcgtattata agctaggcac tggccgtcgt   2520

tttacaacgt cgtgactggg aaaactgcta gcttgggatc tttgtgaagg aaccttactt   2580
```

```
ctgtggtgtg acataattgg acaaactacc tacagagatt taaagctcta aggtaaatat    2640

aaaattttta agtgtataat gtgttaaact agctgcatat gcttgctgct tgagagtttt    2700

gcttactgag tatgatttat gaaaatatta tacacaggag ctagtgattc taattgtttg    2760

tgtattttag attcacagtc ccaaggctca tttcaggccc ctcagtcctc acagtctgtt    2820

catgatcata atcagccata ccacatttgt agaggtttta cttgctttaa aaaacctccc    2880

acacctcccc ctgaacctga aacataaaat gaatgcaatt gttgttgtta acttgtttat    2940

tgcagcttat aatggttaca aataaagcaa tagcatcaca aatttcacaa ataaagcatt    3000

tttttcactg cattctagtt gtggtttgtc caaactcatc aatgtatctt atcatgtctg    3060

gatcgatcct gcattaatga atcggccaac gcgcggggag aggcggtttg cgtattggct    3120

ggcgtaatag cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg    3180

gcgaatggga cgcgccctgt agcggcgcat taagcgcggc gggtgtggtg gttacgcgca    3240

gcgtgaccgc tacacttgcc agcgccctag cgcccgctcc tttcgctttc ttcccttcct    3300

ttctcgccac gttcgccggc tttccccgtc aagctctaaa tcggggcctc cctttagggt    3360

tccgatttag tgctttacgg cacctcgacc ccaaaaaact tgattagggt gatggttcac    3420

gtagtgggcc atcgccctga tagacggttt ttcgcccttt gacgttggag tccacgttct    3480

ttaatagtgg actcttgttc caaactggaa caacactcaa ccctatctcg gtctattctt    3540

ttgatttata agggattttg ccgatttcgg cctattggtt aaaaaatgag ctgatttaac    3600

aaatatttaa cgcgaatttt aacaaaatat taacgtttac aatttcgcct gatgcggtat    3660

tttctcctta cgcatctgtg cggtatttca caccgcatac gcggatctgc gcagcaccat    3720

ggcctgaaat aacctctgaa agaggaactt ggttaggtac cttctgaggc ggaaagaacc    3780

agctgtggaa tgtgtgtcag ttagggtgtg gaaagtcccc aggctcccca gcaggcagaa    3840

gtatgcaaag catgcatctc aattagtcag caaccaggtg tggaaagtcc ccaggctccc    3900

cagcaggcag aagtatgcaa agcatgcatc tcaattagtc agcaaccata gtcccgcccc    3960

taactccgcc catcccgccc ctaactccgc ccagttccgc ccattctccg ccccatggct    4020

gactaatttt ttttatttat gcagaggccg aggccgcctc ggcctctgag ctattccaga    4080

agtagtgagg aggctttttt ggaggcctag gcttttgcaa aaagcttgat tcttctgaca    4140

caacagtctc gaacttaagg ctagagccac catgattgaa caagatggat tgcacgcagg    4200

ttctccggcc gcttgggtgg agaggctatt cggctatgac tgggcacaac agacaatcgg    4260

ctgctctgat gccgccgtgt tccggctgtc agcgcagggg cgcccggttc tttttgtcaa    4320

gaccgacctg tccggtgccc tgaatgaact gcaggacgag gcagcgcggc tatcgtggct    4380

ggccacgacg ggcgttcctt gcgcagctgt gctcgacgtt gtcactgaag cgggaaggga    4440
```

```
ctggctgcta ttgggcgaag tgccggggca ggatctcctg tcatctcacc ttgctcctgc    4500

cgagaaagta tccatcatgg ctgatgcaat gcggcggctg catacgcttg atccggctac    4560

ctgcccattc gaccaccaag cgaaacatcg catcgagcga gcacgtactc ggatggaagc    4620

cggtcttgtc gatcaggatg atctggacga agagcatcag gggctcgcgc cagccgaact    4680

gttcgccagg ctcaaggcgc gcatgcccga cggcgaggat ctcgtcgtga cccatggcga    4740

tgcctgcttg ccgaatatca tggtggaaaa tggccgcttt tctggattca tcgactgtgg    4800

ccggctgggt gtggcggacc gctatcagga catagcgttg gctacccgtg atattgctga    4860

agagcttggc ggcgaatggg ctgaccgctt cctcgtgctt tacggtatcg ccgctcccga    4920

ttcgcagcgc atcgccttct atcgccttct tgacgagttc ttctgagcgg gactctgggg    4980

ttcgaaatga ccgaccaagc gacgcccaac ctgccatcac gatggccgca ataaaatatc    5040

tttattttca ttacatctgt gtgttggttt tttgtgtgaa tcgatagcga taaggatccg    5100

cgtatggtgc actctcagta caatctgctc tgatgccgca tagttaagcc agccccgaca    5160

cccgccaaca cccgctgacg cgccctgacg ggcttgtctg ctcccggcat ccgcttacag    5220

acaagctgtg accgtctccg ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa    5280

acgcgcgaga cgaaagggcc tcgtgatacg cctattttta taggttaatg tcatgataat    5340

aatggtttct tagacgtcag gtggcacttt tcggggaaat gtgcgcggaa cccctatttg    5400

tttatttttc taaatacatt caaatatgta tccgctcatg agacaataac cctgataaat    5460

gcttcaataa tattgaaaaa ggaagagtat gagtattcaa catttccgtg tcgcccttat    5520

tccctttttt gcggcatttt gccttcctgt ttttgctcac ccagaaacgc tggtgaaagt    5580

aaaagatgct gaagatcagt tgggtgcacg agtgggttac atcgaactgg atctcaacag    5640

cggtaagatc cttgagagtt ttcgccccga agaacgtttt ccaatgatga gcacttttaa    5700

agttctgcta tgtggcgcgg tattatcccg tattgacgcc gggcaagagc aactcggtcg    5760

ccgcatacac tattctcaga atgacttggt tgagtactca ccagtcacag aaaagcatct    5820

tacggatggc atgacagtaa gagaattatg cagtgctgcc ataaccatga gtgataacac    5880

tgcggccaac ttacttctga caacgatcgg aggaccgaag gagctaaccg cttttttgca    5940

caacatgggg gatcatgtaa ctcgccttga tcgttgggaa ccggagctga atgaagccat    6000

accaaacgac gagcgtgaca ccacgatgcc tgtagcaatg gcaacaacgt tgcgcaaact    6060

attaactggc gaactactta ctctagcttc ccggcaacaa ttaatagact ggatggaggc    6120

ggataaagtt gcaggaccac ttctgcgctc ggcccttccg gctggctggt ttattgctga    6180

taaatctgga gccggtgagc gtgggtctcg cggtatcatt gcagcactgg ggccagatgg    6240

taagccctcc cgtatcgtag ttatctacac gacggggagt caggcaacta tggatgaacg    6300
```

aaatagacag atcgctgaga taggtgcctc actgattaag cattggtaac tgtcagacca      6360

agtttactca tatatacttt agattgattt aaaacttcat ttttaattta aaaggatcta      6420

ggtgaagatc ctttttgata atctcatgac caaaatccct taacgtgagt tttcgttcca      6480

ctgagcgtca gaccccgtag aaaagatcaa aggatcttct tgagatcctt tttttctgcg      6540

cgtaatctgc tgcttgcaaa caaaaaaacc accgctacca gcggtggttt gtttgccgga      6600

tcaagagcta ccaactcttt ttccgaaggt aactggcttc agcagagcgc agataccaaa      6660

tactgtcctt ctagtgtagc cgtagttagg ccaccacttc aagaactctg tagcaccgcc      6720

tacatacctc gctctgctaa tcctgttacc agtggctgct gccagtggcg ataagtcgtg      6780

tcttaccggg ttggactcaa gacgatagtt accggataag cgcagcggt cgggctgaac       6840

ggggggttcg tgcacacagc ccagcttgga gcgaacgacc tacaccgaac tgagatacct      6900

acagcgtgag cattgagaaa gcgccacgct tcccgaaggg agaaaggcgg acaggtatcc      6960

ggtaagcggc agggtcggaa caggagagcg cacgagggag cttccagggg gaaacgcctg      7020

gtatctttat agtcctgtcg ggtttcgcca cctctgactt gagcgtcgat ttttgtgatg      7080

ctcgtcaggg gggcggagcc tatggaaaaa cgccagcaac gcggcctttt tacggttcct      7140

ggccttttgc tggccttttg ctcacatgtt ctttcctgcg ttatcccctg attctgtgga      7200

taaccgtatt accgcctttg agtgagctga taccgctcgc cgcagccgaa cgaccgagcg      7260

cagcgagtca gtgagcgagg aagcggaaga gcgcccaata cgcaaaccgc ctctccccgc      7320

gcgttggccg attcattaat gcagagcttg caattcgcgc gttttcaat attattgaag       7380

catttatcag ggttattgtc tcatgagcgg atacatattt gaatgtattt agaaaaataa      7440

acaaataggg gttccgcgca catttccccg aaaagtgcca cctgacgtct aagaaaccat      7500

tattatcatg acattaacct ataaaaatag gcgtagtacg aggccctttc actcattag       7559

<210> 179

<211> 12288

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST32

<220>

<221> misc_feature

<222> (2263)..(2263)

<223>   'n' can be any nucleotide (A, T, C, G or U)


<400>   179
```
gacgaaaggg cctcgtgata cgcctatttt tataggttaa tgtcatgata ataatggttt      60

cttaggacgg atcgcttgcc tgtaacttac acgcgcctcg tatcttttaa tgatggaata     120

atttgggaat ttactctgtg tttatttatt tttatgtttt gtatttggat tttagaaagt     180

aaataaagaa ggtagaagag ttacggaatg aagaaaaaaa aataaacaaa ggtttaaaaa     240

atttcaacaa aaagcgtact ttacatatat atttattaga caagaaaagc agattaaata     300

gatatacatt cgattaacga taagtaaaat gtaaaatcac aggattttcg tgtgtggtct     360

tctacacaga caagatgaaa caattcggca ttaatacctg agagcaggaa gagcaagata     420

aaaggtagta tttgttggcg atccccctag agtcttttac atcttcggaa aacaaaaact     480

attttttctt taatttcttt ttttactttc tatttttaat ttatatattt atattaaaaa     540

atttaaatta taattatttt tatagcacgt gatgaaaagg acccaggtgg cactttttcgg     600

ggaaatgtgc gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg     660

ctcatgagac aataaccctg ataaatgctt caataatctg cagtgcgcag ggcccgtgtc     720

tcaaaatctc tgatgttaca ttgcacaaga taaaaatata tcatcatgaa caataaaact     780

gtctgcttac ataaacagta atacaagggg tgttatgagc catattcaac gggaaacgtc     840

ttgctggagg ccgcgattaa attccaacat ggatgctgat ttatatgggt ataaatgggc     900

tcggtagcca accactagaa ctatagctag agtcctgggc gaacaaacga tgctcgcctt     960

ccagaaaacc gaggatgcga accacttcat ccggggtcag caccaccggc aagcgccgcg    1020

acggccgagg tcttccgatc tcctgaagcc agggcagatc cgtgcacagc accttgccgt    1080

agaagaacag caaggccgcc aatgcctgac gatgcgtgga gaccgaaacc ttgcgctcgt    1140

tcgccagcca ggacagaaat gcctcgactt cgctgctgcc caaggttgcc gggtgacgca    1200

caccgtggaa acggatgaag gcacgaaccc agttgacata agcctgttcg gttcgtaaac    1260

tgtaatgcaa gtagcgtatg cgctcacgca actggtccag aaccttgacc gaacgcagcg    1320

gtggtaacgg cgcagtggcg gttttcatgg cttgttatga ctgttttttt gtacagtcta    1380

tgcctcgggc atccaagcag caagcgcgtt acgccgtggg tcgatgtttg atgttatgga    1440

gcagcaacga tgttacgcag cagcaacgat gttacgcagc agggcagtcg ccctaaaaca    1500

aagttaggtg gctcaagtat gggcatcatt cgcacatgta ggctcggccc tgaccaagtc    1560

aaatccatgc gggctgctct tgatctttttc ggtcgtgagt tcggagacgt agccacctac    1620

tcccaacatc agccggactc cgattacctc gggaacttgc tccgtagtaa gacattcatc    1680

gcgcttgctg ccttcgacca agaagcggtt gttggcgctc tcgcggctta cgttctgccc    1740
```

```
aggtttgagc agccgcgtag tgagatctat atctatgatc tcgcagtctc cggcgagcac   1800

cggaggcagg gcattgccac cgcgctcatc aatctcctca agcatgaggc caacgcgctt   1860

ggtgcttatg tgatctacgt gcaagcagat tacggtgacg atcccgcagt ggctctctat   1920

acaaagttgg gcatacggga agaagtgatg cactttgata tcgacccaag taccgccacc   1980

taacaattcg ttcaagccga gatcggcttc ccggcctaat aggttgtatt gatgttggac   2040

gagtcggaat cgcagaccga taccaggatc ttgccatcct atggaactgc ctcggtgagt   2100

tttctccttc attacagaaa cggctttttc aaaaatatgg tattgataat cctgatatga   2160

ataaattgca gtttcatttg atgctcgatg agtttttcta atcagaattg gttaattggt   2220

tgtaacactg gcagagcatt acgctgactt gacgggacgg cgncatgacc aaaatccctt   2280

aacgtgagtt ttcgttccac tgagcgtcag accccgtaga aaagatcaaa ggatcttctt   2340

gagatccttt ttttctgcgc gtaatctgct gcttgcaaac aaaaaaacca ccgctaccag   2400

cggtggtttg tttgccggat caagagctac caactctttt tccgaaggta actggcttca   2460

gcagagcgca gataccaaat actgtccttc tagtgtagcc gtagttaggc caccacttca   2520

agaactctgt agcaccgcct acatacctcg ctctgctaat cctgttacca gtggctgctg   2580

ccagtggcga taagtcgtgt cttaccgggt tggactcaag acgatagtta ccggataagg   2640

cgcagcggtc gggctgaacg gggggttcgt gcacacagcc agcttggag cgaacgacct   2700

acaccgaact gagataccta cagcgtgagc attgagaaag cgccacgctt cccgaaggga   2760

gaaaggcgga caggtatccg gtaagcggca gggtcggaac aggagagcgc acgagggagc   2820

ttccaggggg gaacgcctgg tatctttata gtcctgtcgg gtttcgccac ctctgacttg   2880

agcgtcgatt tttgtgatgc tcgtcagggg ggccgagcct atggaaaaac gccagcaacg   2940

cggcctttt acggttcctg gccttttgct ggccttttgc tcacatgttc tttcctgcgt   3000

tatcccctga ttctgtggat aaccgtatta ccgcctttga gtgagctgat accgctcgcc   3060

gcagccgaac gaccgagcgc agcgagtcag tgagcgagga agcggaagag cgcccaatac   3120

gcaaaccgcc tctccccgcg cgttggccga ttcattaatg cagctggcac gacaggtttc   3180

ccgactggaa agcgggcagt gagcgcaacg caattaatgt gagttacctc actcattagg   3240

cacccaggc tttacacttt atgcttccgg ctcctatgtt gtgtggaatt gtgagcggat   3300

aacaatttca cacaggaaac agctatgacc atgattacgc caagctcgga attaaccctc   3360

actaaaggga acaaaagctg gtaccgatcc cgagctttgc aaattaaagc cttcgagcgt   3420

cccaaaacct tctcaagcaa ggttttcagt ataatgttac atgcgtacac gcgtctgtac   3480

agaaaaaaaa gaaaaatttg aaatataaat aacgttctta atactaacat aactataaaa   3540

aaataaatag ggacctagac ttcaggttgt ctaactcctt ccttttcggt tagagcggat   3600
```

```
gtggggggag ggcgtgaatg taagcgtgac ataactaatt acatgatatc gacaaaggaa   3660

aaggggcctg tttactcaca ggcttttttc aagtaggtaa ttaagtcgtt tctgtctttt   3720

tccttcttca acccaccaaa ggccatcttg gtactttttt tttttttttt tttttttttt   3780

tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt tttttttttt   3840

ttttttttca tagaaataat acagaagtag atgttgaatt agattaaact gaagatatat   3900

aatttattgg aaaatacata gagctttttg ttgatgcgct taagcgatca attcaacaac   3960

accaccagca gctctgattt tttcttcagc caacttggag acgaatctag ctttgacgat   4020

aactggaaca tttggaattc taccettacc caagatctta ccgtaaccgg ctgccaaagt   4080

gtcaataact ggagcagttt ccttagaagc agatttcaag tattggtctc tcttgtcttc   4140

tgggatcaat gtccacaatt tgtccaagtt caagactggc ttccagaaat gagcttgttg   4200

cttgtggaag tatctcatac caaccttacc gaaataacct ggatggtatt tatccatgtt   4260

aattctgtgg tgatgttgac caccggccat acctctacca ccggggtgct ttctgtgctt   4320

accgatacga cctttaccgg ctgagacgtg acctctgtgc tttctagtct tagtgaatct   4380

ggaaggcatt cttgattagt tggatgattg ttctgggatt taatgcaaaa atcacttaag   4440

aaggaaaatc aacggagaaa gcaaacgcca tcttaaatat acgggataca gatgaaaggg   4500

tttgaaccta tctggaaaat agcattaaac aagcgaaaaa ctgcgaggaa aattgtttgc   4560

gtctctgcgg gctattcacg cgccagagga aaataggaaa aataacaggg cattagaaaa   4620

ataattttga ttttggtaat gtgtgggtcc tggtgtacag atgttacatt ggttacagta   4680

ctcttgtttt tgctgtgttt ttcgatgaat ctccaaaatg gttgttagca catggaagag   4740

tcaccgatgc taagttatct ctatgtaagc tacgtggcgt gacttttgat gaagccgcac   4800

aagagataca ggattggcaa ctgcaaatag aatctgggga tcccccctcg agatccggga   4860

tcgaagaaat gatggtaaat gaaataggaa atcaaggagc atgaaggcaa aagacaaata   4920

taagggtcga acgaaaaata aagtgaaaag tgttgatatg atgtatttgg ctttgcggcg   4980

ccgaaaaaac gagtttacgc aattgcacaa tcatgctgac tctgtggcgg acccgcgctc   5040

ttgccggccc ggcgataacg ctgggcgtga ggctgtgccc ggcggagttt tttgcgcctg   5100

cattttccaa ggtttaccct gcgctaaggg gcgagattgg agaagcaata agaatgccgg   5160

ttggggttgc gatgatgacg accacgacaa ctggtgtcat tatttaagtt gccgaaagaa   5220

cctgagtgca tttgcaacat gagtatacta gaagaatgag ccaagacttg cgagacgcga   5280

gtttgccggt ggtgcgaaca atagagcgac catgaccttg aaggtgagac gcgcataacc   5340

gctagagtac tttgaagagg aaacagcaat agggttgcta ccagtataaa tagacaggta   5400

catacaacac tggaaatggt tgtctgtttg agtacgcttt caattcattt gggtgtgcac   5460
```

```
tttattatgt tacaatatgg aagggaactt tacacttctc ctatgcacat atattaatta    5520

aagtccaatg ctagtagaga agggggggtaa cacccctccg cgctcttttc cgattttttt    5580

ctaaaccgtg gaatatttcg gatatccttt tgttgtttcc gggtgtacaa tatggacttc    5640

ctcttttctg gcaaccaaac ccatacatcg ggattcctat aataccttcg ttggtctccc    5700

taacatgtag gtggcggagg ggagatatac aatagaacag ataccagaca agacataatg    5760

ggctaaacaa gactacacca attacactgc ctcattgatg gtggtacata acgaactaat    5820

actgtagccc tagacttgat agccatcatc atatcgaagt ttcactaccc tttttccatt    5880

tgccatctat tgaagtaata ataggcgcat gcaacttctt ttcttttttt ttcttttctc    5940

tctcccccgt tgttgtctca ccatatccgc aatgacaaaa aaaatgatgg aagacactaa    6000

aggaaaaaat taacgacaaa gacagcacca acagatgtcg ttgttccaga gctgatgagg    6060

ggtatcttcg aacacacgaa acttttttcct tccttcattc acgcacacta ctctctaatg    6120

agcaacggta tacggccttc cttccagtta cttgaatttg aaataaaaaa agtttgccgc    6180

tttgctatca agtataaata gacctgcaat tattaatctt ttgtttcctc gtcattgttc    6240

tcgttccctt tcttccttgt ttctttttct gcacaatatt tcaagctata ccaagcatac    6300

aatcaactcc aagcttgaag caagcctcct gaaagatgaa gctactgtct tctatcgaac    6360

aagcatgcga tatttgccga cttaaaaagc tcaagtgctc caaagaaaaa ccgaagtgcg    6420

ccaagtgtct gaagaacaac tgggagtgtc gctactctcc caaaaccaaa aggtctccgc    6480

tgactagggc acatctgaca gaagtggaat caaggctaga aagactggaa cagctatttc    6540

tactgatttt tcctcgagaa gaccttgaca tgattttgaa aatggattct ttacaggata    6600

taaaagcatt gttaacagga ttatttgtac aagataatgt gaataaagat gccgtcacag    6660

atagattggc ttcagtggag actgatatgc ctctaacatt gagacagcat agaataagtg    6720

cgacatcatc atcggaagag agtagtaaca aaggtcaaag acagttgact gtatcgtcga    6780

ggtcgaatca aacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat gatataaata    6840

tcaatatatt aaattagatt ttgcataaaa aacagactac ataatactgt aaaacacaac    6900

atatccagtc actatggcgg ccgctaagtt ggcagcatca cccgacgcac tttgcgccga    6960

ataaatacct gtgacggaag atcacttcgc agaataaata aatcctggtg tccctgttga    7020

taccgggaag ccctgggcca acttttggcg aaaatgagac gttgatcggc acgtaagagg    7080

ttccaacttt caccataatg aaataagatc actaccgggc gtattttttg agttatcgag    7140

attttcagga gctaaggaag ctaaaatgga gaaaaaaatc actggatata ccaccgttga    7200

tatatcccaa tggcatcgta aagaacattt tgaggcattt cagtcagttg ctcaatgtac    7260

ctataaccag accgttcagc tggatattac ggcctttta aagaccgtaa agaaaaataa    7320
```

```
gcacaagttt tatccggcct ttattcacat tcttgcccgc ctgatgaatg ctcatccgga    7380

attccgtatg gcaatgaaag acggtgagct ggtgatatgg gatagtgttc acccttgtta    7440

caccgttttc catgagcaaa ctgaaacgtt ttcatcgctc tggagtgaat accacgacga    7500

tttccggcag tttctacaca tatattcgca agatgtggcg tgttacggtg aaaacctggc    7560

ctatttccct aaagggttta ttgagaatat gtttttcgtc tcagccaatc cctgggtgag    7620

tttcaccagt tttgatttaa acgtggccaa tatggacaac ttcttcgccc ccgttttcac    7680

catgggcaaa tattatacgc aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca    7740

tcatgccgtc tgtgatggct tccatgtcgg cagaatgctt aatgaattac aacagtactg    7800

cgatgagtgg cagggcgggg cgtaatctag aggatccggc ttactaaaag ccagataaca    7860

gtatgcgtat ttgcgcgctg atttttgcgg tataagaata tatactgata tgtatacccg    7920

aagtatgtca aaaagaggtg tgctatgaag cagcgtatta cagtgacagt tgacagcgac    7980

agctatcagt tgctcaaggc atatatgatg tcaatatctc cggtctggta agcacaacca    8040

tgcagaatga agcccgtcgt ctgcgtgccg aacgctggaa agcggaaaat caggaaggga    8100

tggctgaggt cgcccggttt attgaaatga acggctcttt tgctgacgag aacagggact    8160

ggtgaaatgc agtttaaggt ttacacctat aaaagagaga gccgttatcg tctgtttgtg    8220

gatgtacaga gtgatattat tgacacgccc gggcgacgga tggtgatccc cctggccagt    8280

gcacgtctgc tgtcagataa agtctcccgt gaactttacc cggtggtgca tatcggggat    8340

gaaagctggc gcatgatgac caccgatatg gccagtgtgc cggtctccgt tatcggggaa    8400

gaagtggctg atctcagcca ccgcgaaaat gacatcaaaa acgccattaa cctgatgttc    8460

tggggaatat aaatgtcagg ctcccttata cacagccagt ctgcaggtcg accatagtga    8520

ctggatatgt tgtgttttac agtattatgt agtctgtttt ttatgcaaaa tctaatttaa    8580

tatattgata tttatatcat tttacgtttc tcgttcagct ttcttgtaca aagtggtttg    8640

atggccgcta agtaagtaag acgtcgagct ctaagtaagt aacggccgcc accgcggtgg    8700

agctttggac ttcttcgcca gaggtttggt caagtctcca atcaaggttg tcggcttgtc    8760

taccttgcca gaaatttacg aaaagatgga aaagggtcaa atcgttggta gatacgttgt    8820

tgacacttct aaataagcga atttcttatg atttatgatt tttattatta aataagttat    8880

aaaaaaaata agtgtataca aattttaaag tgactcttag gttttaaaac gaaaattctt    8940

gttcttgagt aactctttcc tgtaggtcag gttgctttct caggtatagc atgaggtcgc    9000

tcttattgac cacacctcta ccggcatgcc gagcaaatgc ctgcaaatcg ctccccattt    9060

cacccaattg tagatatgct aactccagca atgagttgat gaatctcggt gtgtatttta    9120

tgtcctcaga ggacaatacc tgttgtaatc gttcttccac acggatccca attcgcccta    9180
```

```
tagtgagtcg tattacaatt cactggccgt cgttttacaa cgtcgtgact gggaaaaccc   9240

tggcgttacc caacttaatc gccttgcagc acatcccct ttcgccagct ggcgtaatag    9300

cgaagaggcc cgcaccgatc gcccttccca acagttgcgc agcctgaatg gcgaatggac   9360

gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcgcag cgtgaccgct   9420

acacttgcca gcgccctagc gcccgctcct ttcgctttct tcccttcctt tctcgccacg   9480

ttcgccggct ttccccgtca agctctaaat cggggggctcc ctttagggtt ccgatttagt  9540

gctttacggc acctcgaccc caaaaaactt gattagggtg atggttcacg tagtgggcca   9600

tcgccctgat agacggtttt tcgccctttg acgttggagt ccacgttctt taatagtgga   9660

ctcttgttcc aaactggaac aacactcaac cctatctcgg tctattcttt tgatttataa   9720

gggattttgc cgatttcggc ctattggtta aaaaatgagc tgatttaaca aaaatttaac   9780

gcgaatttta acaaaatatt aacgtttaca atttcctgat gcggtatttt ctccttacgc   9840

atctgtgcgg tatttcacac cgcatatcga ccggtcgagg agaacttcta gtatatccac   9900

atacctaata ttattgcctt attaaaaatg gaatcggaac aattacatca aaatccacat   9960

tctcttcaaa atcaattgtc ctgtacttcc ttgttcatgt gtgttcaaaa acgttatatt  10020

tataggataa ttatactcta tttctcaaca agtaattggt tgtttggccg agcggtctaa  10080

ggcgcctgat tcaagaaata tcttgaccgc agttaactgt gggaatactc aggtatcgta  10140

agatgcaaga gttcgaatct cttagcaacc attatttttt tcctcaacat aacgagaaca  10200

cacaggggcg ctatcgcaca gaatcaaatt cgatgactgg aaattttttg ttaatttcag  10260

aggtcgcctg acgcatatac ctttttcaac tgaaaaattg ggagaaaaag gaaaggtgag  10320

aggccggaac cggcttttca tatagaatag agaagcgttc atgactaaat gcttgcatca  10380

caatacttga agttgacaat attatttaag gacctattgt tttttccaat aggtggttag  10440

caatcgtctt actttctaac ttttcttacc ttttacattt cagcaatata tatatatatt  10500

tcaaggatat accattctaa tgtctgcccc tatgtctgcc cctaagaaga tcgtcgtttt  10560

gccaggtgac cacgttggtc aagaaatcac agccgaagcc attaaggttc ttaaagctat  10620

ttctgatgtt cgttccaatg tcaagttcga tttcgaaaat catttaattg gtggtgctgc  10680

tatcgatgct acaggtgtcc cacttccaga tgaggcgctg gaagcctcca agaaggttga  10740

tgccgttttg ttaggtgctg tgggtggtcc taaatggggt accggtagtg ttagacctga  10800

acaaggttta ctaaaaatcc gtaaagaact tcaattgtac gccaacttaa gaccatgtaa  10860

ctttgcatcc gactctcttt tagacttatc tccaatcaag ccacaatttg ctaaaggtac  10920

tgacttcgtt gttgtcagag aattagtggg aggtatttac tttggtaaga gaaaggaaga  10980

cgatggtgat ggtgtcgctt gggatagtga acaatacacc gttccagaag tgcaaagaat  11040
```

```
cacaagaatg gccgctttca tggccctaca acatgagcca ccattgccta tttggtcctt    11100

ggataaagct aatgttttgg cctcttcaag attatggaga aaaactgtgg aggaaaccat    11160

caagaacgaa ttccctacat tgaaggttca acatcaattg attgattctg ccgccatgat    11220

cctagttaag aacccaaccc acctaaatgg tattataatc accagcaaca tgtttggtga    11280

tatcatctcc gatgaagcct ccgttatccc aggttccttg ggtttgttgc catctgcgtc    11340

cttggcctct ttgccagaca agaacaccgc atttggtttg tacgaaccat gccacggttc    11400

tgctccagat ttgccaaaga ataaggttga ccctatcgcc actatcttgt ctgctgcaat    11460

gatgttgaaa ttgtcattga acttgcctga agaaggtaag gccattgaag atgcagttaa    11520

aaaggttttg gatgcaggta tcagaactgg tgatttaggt ggttccaaca gtaccaccga    11580

agtcggtgat gctgtcgccg aagaagttaa gaaaatcctt gcttaaaaag attctctttt    11640

tttatgatat ttgtacataa actttataaa tgaaattcat aatagaaacg acacgaaatt    11700

acaaaatgga atatgttcat agggtagacg aaactatata cgcaatctac atacatttat    11760

caagaaggag aaaaaggagg atagtaaagg aatacaggta agcaaattga tactaatggc    11820

tcaacgtgat aaggaaaaag aattgcactt taacattaat attgacaagg aggagggcac    11880

cacacaaaaa gttaggtgta acagaaaatc atgaaactac gattcctaat ttgatattgg    11940

aggattttct ctaaaaaaaa aaaatacaa caaataaaaa acactcaatg acctgaccat    12000

ttgatggagt ttaagtcaat accttcttga accatttccc ataatggtga aagttccctc    12060

aagaatttta ctctgtcaga aacggcctta cgacgtagtc gatatggtgc actctcagta    12120

caatctgctc tgatgccgca tagttaagcc agccccgaca cccgccaaca cccgctgacg    12180

cgccctgacg ggcttgtctg ctcccggcat ccgcttacag acaagctgtg accgtctccg    12240

ggagctgcat gtgtcagagg ttttcaccgt catcaccgaa acgcgcga                 12288
```

<210> 180

<211> 8815

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST33

<400> 180
```
gccttacgca tctgtgcggt atttcacacc gcaggcaagt gcacaaacaa tacttaaata        60

aatactactc agtaataacc tatttcttag cattttttgac gaaatttgct attttgttag      120
```

```
agtcttttac accatttgtc tccacacctc cgcttacatc aacaccaata acgccattta    180

atctaagcgc atcaccaaca ttttctggcg tcagtccacc agctaacata aaatgtaagc    240

tttcggggct ctcttgcctt ccaacccagt cagaaatcga gttccaatcc aaaagttcac    300

ctgtcccacc tgcttctgaa tcaaacaagg gaataaacga atgaggtttc tgtgaagctg    360

cactgagtag tatgttgcag tcttttggaa atacgagtct tttaataact ggcaaaccga    420

ggaactcttg gtattcttgc cacgactcat ctccatgcag ttggacgata tcaatgccgt    480

aatcattgac cagagccaaa acatcctcct taggttgatt acgaaacacg ccaaccaagt    540

atttcggagt gcctgaacta tttttatatg cttttacaag acttgaaatt ttccttgcaa    600

taaccgggtc aattgttctc tttctattgg gcacacatat aatacccagc aagtcagcat    660

cggaatctag agcacattct gcggcctctg tgctctgcaa gccgcaaact ttcaccaatg    720

gaccagaact acctgtgaaa ttaataacag acatactcca agctgccttt gtgtgcttaa    780

tcacgtatac tcacgtgctc aatagtcacc aatgccctcc ctcttggccc tctccttttc    840

ttttttcgac cgaattaatt cttaatcggc aaaaaagaa aagctccgga tcaagattgt    900

acgtaaggtg acaagctatt tttcaataaa gaatatcttc cactactgcc atctggcgtc    960

ataactgcaa agtacacata tattacgatg ctgtctatta aatgcttcct atattatata   1020

tatagtaatg tcgtttatgg tgcactctca gtacaatctg ctctgatgcc gcatagttaa   1080

gccagccccg acacccgcca acacccgctg acgcgccctg acgggcttgt ctgctcccgg   1140

catccgctta cagacaagct gtgaccgtct ccgggagctg catgtgtcag aggttttcac   1200

cgtcatcacc gaaacgcgcg agacgaaagg gcctcgtgat acgcctattt ttataggtta   1260

atgtcatgat aataatggtt tcttaggacg gatcgcttgc ctgtaactta cacgcgcctc   1320

gtatctttta atgatggaat aatttgggaa tttactctgt gtttatttat ttttatgttt   1380

tgtatttgga ttttagaaag taaataaaga aggtagaaga gttacggaat gaagaaaaaa   1440

aaataaacaa aggtttaaaa aatttcaaca aaaagcgtac tttacatata tatttattag   1500

acaagaaaag cagattaaat agatatacat tcgattaacg ataagtaaaa tgtaaaatca   1560

caggattttc gtgtgtggtc ttctacacag acaagatgaa acaattcggc attaatacct   1620

gagagcagga agagcaagat aaaaggtagt atttgttggc gatcccccta gagtctttta   1680

catcttcgga aaacaaaaac tatttttct ttaatttctt tttttacttt ctatttttaa   1740

tttatatatt tatattaaaa aatttaaatt ataattattt ttatagcacg tgatgaaaag   1800

gacccaggtg gcactttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa   1860

atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat   1920

tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc cttttttgcg   1980
```

```
gcattttgcc ttcctgtttt tgctcaccca gaaacgctgg tgaaagtaaa agatgctgaa    2040

gatcagttgg gtgcacgagt gggttacatc gaactggatc tcaacagcgg taagatcctt    2100

gagagttttc gccccgaaga acgttttcca atgatgagca cttttaaagt tctgctatgt    2160

ggcgcggtat tatcccgtat tgacgccggg caagagcaac tcggtcgccg catacactat    2220

tctcagaatg acttggttga gtactcacca gtcacagaaa agcatcttac ggatggcatg    2280

acagtaagag aattatgcag tgctgccata accatgagtg ataacactgc ggccaactta    2340

cttctgacaa cgatcggagg accgaaggag ctaaccgctt tttttcacaa catgggggat    2400

catgtaactc gccttgatcg ttgggaaccg gagctgaatg aagccatacc aaacgacgag    2460

cgtgacacca cgatgcctgt agcaatggca caacgttgc gcaaactatt aactggcgaa    2520

ctacttactc tagcttcccg gcaacaatta atagactgga tggaggcgga taaagttgca    2580

ggaccacttc tgcgctcggc ccttccggct ggctggttta ttgctgataa atctggagcc    2640

ggtgagcgtg ggtctcgcgg tatcattgca gcactggggc cagatggtaa gccctcccgt    2700

atcgtagtta tctacacgac gggcagtcag gcaactatgg atgaacgaaa tagacagatc    2760

gctgagatag gtgcctcact gattaagcat tggtaactgt cagaccaagt ttactcatat    2820

atactttaga ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt    2880

tttgataatc tcatgaccaa atcccttaa cgtgagtttt cgttccactg agcgtcagac    2940

cccgtagaaa agatcaaagg atcttcttga tcctttttt ttctgcgcgt aatctgctgc    3000

ttgcaaacaa aaaaaccacc gctaccagcg gtggtttgtt tgccggatca agagctacca    3060

actctttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac tgtccttcta    3120

gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac atacctcgct    3180

ctgctaatcc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct taccgggttg    3240

gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg gggttcgtgc    3300

acacagccca gcttggagcg aacgacctac accgaactga gatacctaca gcgtgagcat    3360

tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg    3420

gtcggaacag gagagcgcac gagggagctt ccagggggga acgcctggta tctttatagt    3480

cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcaggggg    3540

ccgagcctat ggaaaaacgc cagcaacgcg gcctttttac ggttcctggc cttttgctgg    3600

ccttttgctc acatgttctt tcctgcgtta tcccctgatt ctgtggataa ccgtattacc    3660

gcctttgagt gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagtg    3720

agcgaggaag cggaagagcg cccaatacgc aaaccgcctc tccccgcgcg ttggccgatt    3780

cattaatgca gctggcacga caggtttccc gactggaaag cgggcagtga gcgcaacgca    3840
```

```
attaatgtga gttacctcac tcattaggca ccccaggctt tacactttat gcttccggct   3900

cctatgttgt gtggaattgt gagcggataa caatttcaca caggaaacag ctatgaccat   3960

gattacgcca agctcggaat taaccctcac taaagggaac aaaagctggg taccgggccc   4020

cccctcgaga tccgggatcg aagaaatgat ggtaaatgaa ataggaaatc aaggagcatg   4080

aaggcaaaag acaaatataa gggtcgaacg aaaaataaag tgaaagtgt tgatatgatg   4140

tatttggctt tgcggcgccg aaaaaacgag tttacgcaat tgcacaatca tgctgactct   4200

gtggcggacc cgcgctcttg ccggcccggc gataacgctg ggcgtgaggc tgtgcccggc   4260

ggagtttttt gcgcctgcat tttccaaggt ttaccctgcg ctaaggggcg agattggaga   4320

agcaataaga atgccggttg gggttgcgat gatgacgacc acgacaactg gtgtcattat   4380

ttaagttgcc gaaagaacct gagtgcattt gcaacatgag tatactagaa gaatgagcca   4440

agacttgcga gacgcgagtt tgccggtggt gcgaacaata gagcgaccat gaccttgaag   4500

gtgagacgcg cataaccgct agagtacttt gaagaggaaa cagcaatagg gttgctacca   4560

gtataaatag acaggtacat acaacactgg aaatggttgt ctgtttgagt acgctttcaa   4620

ttcatttggg tgtgcacttt attatgttac aatatggaag ggaactttac acttctccta   4680

tgcacatata ttaattaaag tccaatgcta gtagagaagg ggggtaacac ccctccgcgc   4740

tcttttccga tttttttcta aaccgtggaa tatttcggat atccttttgt tgtttccggg   4800

tgtacaatat ggacttcctc ttttctggca accaaaccca tacatcggga ttcctataat   4860

accttcgttg gtctccctaa catgtaggtg gcggagggga gatatacaat agaacagata   4920

ccagacaaga cataatgggc taaacaagac tacaccaatt acactgcctc attgatggtg   4980

gtacataacg aactaatact gtagccctag acttgatagc catcatcata tcgaagtttc   5040

actacccttt ttccatttgc catctattga agtaataata ggcgcatgca acttcttttc   5100

ttttttttc ttttctctct cccccgttgt tgtctcacca tatccgcaat gacaaaaaaa   5160

atgatggaag acactaaagg aaaaaattaa cgacaaagac agcaccaaca gatgtcgttg   5220

ttccagagct gatgaggggt atcttcgaac acacgaaact ttttccttcc ttcattcacg   5280

cacactactc tctaatgagc aacggtatac ggccttcctt ccagttactt gaatttgaaa   5340

taaaaaaagt ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatctttg   5400

tttcctcgtc attgttctcg ttccctttct tccttgtttc tttttctgca caatatttca   5460

agctatacca agcatacaat caactccaag cttatgccca agaagaagcg gaaggtctcg   5520

agcggcgcca attttaatca aagtgggaat attgctgata gctcattgtc cttcactttc   5580

actaacagta gcaacggtcc gaacctcata acaactcaaa caaattctca agcgctttca   5640

caaccaattg cctcctctaa cgttcatgat aacttcatga ataatgaaat cacggctagt   5700
```

```
aaaattgatg atggtaataa ttcaaaacca ctgtcacctg gttggacgga ccaaactgcg    5760

tataacgcgt ttggaatcac tacagggatg tttaatacca ctacaatgga tgatgtatat    5820

aactatctat tcgatgatga agatacccca ccaaacccaa aaaaagaggg tgggtcgaat    5880

caaacaagtt tgtacaaaaa agctgaacga gaaacgtaaa atgatataaa tatcaatata    5940

ttaaattaga ttttgcataa aaaacagact acataatact gtaaaacaca acatatccag    6000

tcactatggc ggccgctaag ttggcagcat cacccgacgc actttgcgcc gaataaatac    6060

ctgtgacgga agatcacttc gcagaataaa taaatcctgg tgtccctgtt gataccggga    6120

agccctgggc caacttttgg cgaaaatgag acgttgatcg gcacgtaaga ggttccaact    6180

ttcaccataa tgaaataaga tcactaccgg gcgtattttt tgagttatcg agattttcag    6240

gagctaagga agctaaaatg gagaaaaaaa tcactggata taccaccgtt gatatatccc    6300

aatggcatcg taaagaacat tttgaggcat ttcagtcagt tgctcaatgt acctataacc    6360

agaccgttca gctggatatt acggcctttt taaagaccgt aaagaaaaat aagcacaagt    6420

tttatccggc ctttattcac attcttgccc gcctgatgaa tgctcatccg gaattccgta    6480

tggcaatgaa agacggtgag ctggtgatat gggatagtgt tcacccttgt tacaccgttt    6540

tccatgagca aactgaaacg ttttcatcgc tctggagtga ataccacgac gatttccggc    6600

agtttctaca catatattcg caagatgtgg cgtgttacgg tgaaaacctg gcctatttcc    6660

ctaaagggtt tattgagaat atgttttttcg tctcagccaa tccctgggtg agtttcacca    6720

gttttgattt aaacgtggcc aatatggaca acttcttcgc ccccgttttc accatgggca    6780

aatattatac gcaaggcgac aaggtgctga tgccgctggc gattcaggtt catcatgccg    6840

tctgtgatgg cttccatgtc ggcagaatgc ttaatgaatt acaacagtac tgcgatgagt    6900

ggcagggcgg ggcgtaatct agaggatccg gcttactaaa agccagataa cagtatgcgt    6960

atttgcgcgc tgattttttgc ggtataagaa tatatactga tatgtatacc cgaagtatgt    7020

caaaaagagg tgtgctatga agcagcgtat tacagtgaca gttgacagcg acagctatca    7080

gttgctcaag gcatatatga tgtcaatatc tccggtctgg taagcacaac catgcagaat    7140

gaagcccgtc gtctgcgtgc cgaacgctgg aaagcggaaa tcaggaagg gatggctgag    7200

gtcgcccggt ttattgaaat gaacggctct tttgctgacg agaacaggga ctggtgaaat    7260

gcagtttaag gtttacacct ataaaagaga gagccgttat cgtctgtttg tggatgtaca    7320

gagtgatatt attgacacgc ccgggcgacg gatggtgatc cccctggcca gtgcacgtct    7380

gctgtcagat aaagtctccc gtgaacttta cccggtggtg catatcgggg atgaaagctg    7440

gcgcatgatg accaccgata tggccagtgt gccggtctcc gttatcgggg aagaagtggc    7500

tgatctcagc caccgcgaaa atgacatcaa aaacgccatt aacctgatgt tctggggaat    7560
```

```
ataaatgtca ggctccgtta tacacagcca gtctgcaggt cgaccatagt gactggatat    7620

gttgtgtttt acagtattat gtagtctgtt ttttatgcaa aatctaattt aatatattga    7680

tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtggtt tgatggccgc    7740

taagtaagta agacgtcgag ctccctatag tgagtcgtat tacactggcc gtcgttttac    7800

aacgtcgtga ctgggaaaac accggtgagc tctaagtaag taacggccgc caccgcggtg    7860

gagctttgga cttcttcgcc agaggtttgg tcaagtctcc aatcaaggtt gtcggcttgt    7920

ctaccttgcc agaaatttac gaaaagatgg aaaagggtca aatcgttggt agatacgttg    7980

ttgacacttc taaataagcg aatttcttat gatttatgat ttttattatt aaataagtta    8040

taaaaaaaat aagtgtatac aaattttaaa gtgactctta ggttttaaaa cgaaaattct    8100

tgttcttgag taactctttc ctgtaggtca ggttgctttc tcaggtatag catgaggtcg    8160

ctcttattga ccacacctct accggcatgc cgagcaaatg cctgcaaatc gctccccatt    8220

tcacccaatt gtagatatgc taactccagc aatgagttga tgaatctcgg tgtgtatttt    8280

atgtcctcag aggacaatac ctgttgtaat cgttcttcca cacggatccg catcaggcga    8340

aattgtaaac gttaatattt tgttaaaatt cgcgttaaat atttgttaaa tcagctcatt    8400

ttttaaccaa taggccgaaa tcggcaaaat cccttataaa tcaaagaat  agaccgagat    8460

agggttgagt gttgttccag tttggaacaa gagtccacta ttaaagaacg tggactccaa    8520

cgtcaaaggg cgaaaaaccg tctatcaggg cgatggccca ctacgtgaac catcacccta    8580

atcaagtttt ttggggtcga ggtgccgtaa agcactaaat cggaaccctа aagggagccc    8640

ccgatttaga gcttgacggg gaaagccggc gaacgtggcg agaaaggaag ggaagaaagc    8700

gaaaggagcg ggcgctaggg cgctggcaag tgtagcggtc acgctgcgcg taaccaccac    8760

acccgccgcg cttaatgcgc cgctacaggg cgcgtcccat tcgccattca ctgca        8815
```

<210> 181

<211> 7114

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST34

<400> 181
```
atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc      60

cctctagatc acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat    120
```

```
caatatatta aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca    180

tatccagtca ctatggcggc cgcattaggc accccaggct ttacacttta tgcttccggc    240

tcgtataatg tgtggatttt gagttaggat ccggcgagat tttcaggagc taaggaagct    300

aaaatggaga aaaaaatcac tggatatacc accgttgata tatcccaatg gcatcgtaaa    360

gaacattttg aggcatttca gtcagttgct caatgtacct ataaccagac cgttcagctg    420

gatattacgg ccttttttaaa gaccgtaaag aaaaataagc acaagtttta tccggccttt    480

attcacattc ttgcccgcct gatgaatgct catccggaat tccgtatggc aatgaaagac    540

ggtgagctgg tgatatggga tagtgttcac ccttgttaca ccgttttcca tgagcaaact    600

gaaacgtttt catcgctctg gagtgaatac cacgacgatt ccggcagtt tctacacata    660

tattcgcaag atgtggcgtg ttacggtgaa aacctggcct atttccctaa agggtttatt    720

gagaatatgt ttttcgtctc agccaatccc tgggtgagtt tcaccagttt tgatttaaac    780

gtggccaata tggacaactt cttcgccccc gttttcacca tgggcaaata ttatacgcaa    840

ggcgacaagg tgctgatgcc gctggcgatt caggttcatc atgccgtctg tgatggcttc    900

catgtcggca gaatgcttaa tgaattacaa cagtactgcg atgagtggca gggcggggcg    960

taaacgcgtg gatccggctt actaaaagcc agataacagt atgcgtattt gcgcgctgat   1020

ttttgcggta taagaatata tactgatatg tatacccgaa gtatgtcaaa aagaggtgtg   1080

ctatgaagca gcgtattaca gtgacagttg acagcgacag ctatcagttg ctcaaggcat   1140

atatgatgtc aatatctccg gtctggtaag cacaaccatg cagaatgaag cccgtcgtct   1200

gcgtgccgaa cgctggaaag cggaaaatca ggaagggatg gctgaggtcg cccggtttat   1260

tgaaatgaac ggctcttttg ctgacgagaa cagggactgg tgaaatgcag tttaaggttt   1320

acacctataa aagagagagc cgttatcgtc tgtttgtgga tgtacagagt gatattattg   1380

acacgcccgg cgacggatg gtgatccccc tggccagtgc acgtctgctg tcagataaag   1440

tctcccgtga actttacccg gtggtgcata tcggggatga aagctggcgc atgatgacca   1500

ccgatatggc cagtgtgccg gtctccgtta tcggggaaga agtggctgat ctcagccacc   1560

gcgaaaatga catcaaaaac gccattaacc tgatgttctg gggaatataa atgtcaggct   1620

cccttataca cagccagtct gcaggtcgac catagtgact ggatatgttg tgttttacag   1680

tattatgtag tctgtttttt atgcaaaatc taatttaata tattgatatt tatatcattt   1740

tacgtttctc gttcagcttt cttgtacaaa gtggtgatta tgtccctat actaggttat   1800

tggaaaatta agggccttgt gcaacccact cgacttcttt tggaatatct tgaagaaaaa   1860

tatgaagagc atttgtatga gcgcgatgaa ggtgataaat ggcgaaacaa aaagtttgaa   1920

ttgggtttgg agtttcccaa tcttccttat tatattgatg gtgatgttaa attaacacag   1980
```

```
tctatggcca tcatacgtta tatagctgac aagcacaaca tgttgggtgg ttgtccaaaa    2040

gagcgtgcag agatttcaat gcttgaagga gcggttttgg atattagata cggtgtttcg    2100

agaattgcat atagtaaaga ctttgaaact ctcaaagttg attttcttag caagctacct    2160

gaaatgctga aaatgttcga agatcgttta tgtcataaaa catatttaaa tggtgatcat    2220

gtaacccatc ctgacttcat gttgtatgac gctcttgatg ttgttttata catggaccca    2280

atgtgcctgg atgcgttccc aaaattagtt tgttttaaaa aacgtattga agctatccca    2340

caaattgata agtacttgaa atccagcaag tatatagcat ggcctttgca gggctggcaa    2400

gccacgtttg gtggtggcga ccatcctcca aaatcggatc tggttccgcg tccatgggga    2460

tccggctgct aacaaagccc gaaaggaagc tgagttggct gctgccaccg ctgagcgctt    2520

cccgataagg gagcaggcca gtaaaagcat tacccgtggt ggggttcccg agcggccaaa    2580

gggagcagac tctaaatctg ccgtcatcga cttcgaaggt tcgaatcctt cccccaccac    2640

catcactttc aaaagtgaat tcgctgagca ataactagca taacccettg gggcctctaa    2700

acgggtcttg aggggttttt tgctgaaagg aggaactata tccggatatc cacaggacgg    2760

gtgtggtcgc catgatcgcg tagtcgatag tggctccaag tagcgaagcg agcaggactg    2820

ggcggcggcc aaagcggtcg dacagtgctc cgagaacggg tgcgcataga aattgcatca    2880

acgcatatag cgctagcagc acgccatagt gactggcgat gctgtcggaa tggacgatat    2940

cccgcaagag gcccggcagt accggcataa ccaagcctat gcctacagca tccagggtga    3000

cggtgccgag gatgacgatg agcgcattgt tagatttcat acacggtgcc tgactgcgtt    3060

agcaatttaa ctgtgataaa ctaccgcatt aaagcttatc gatgataagc tgtcaaacat    3120

gagaattctt gaagacgaaa gggcctcgtg atacgcctat ttttataggt taatgtcatg    3180

ataataatgg tttcttagac gtcaggtggc acttttcggg gaaatgtgcg cggaacccct    3240

atttgtttat ttttctaaat acattcaaat atgtatccgc tcatgagaca ataaccctga    3300

taaatgcttc aataatattg aaaaggaag agtatgagta ttcaacattt ccgtgtcgcc    3360

cttattccct tttttgcggc attttgcctt cctgtttttg ctcacccaga aacgctggtg    3420

aaagtaaaag atgctgaaga tcagttgggt gcacgagtgg gttacatcga actggatctc    3480

aacagcggta agatccttga gagttttcgc cccgaagaac gttttccaat gatgagcact    3540

tttaaagttc tgctatgtgg cgcggtatta tcccgtgttg acgccgggca agagcaactc    3600

ggtcgccgca tacactattc tcagaatgac ttggttgagt actcaccagt cacagaaaag    3660

catcttacgg atggcatgac agtaagagaa ttatgcagtg ctgccataac catgagtgat    3720

aacactgcgg ccaacttact tctgacaacg atcggaggac cgaaggagct aaccgctttt    3780

ttgcacaaca tgggggatca tgtaactcgc cttgatcgtt gggaaccgga gctgaatgaa    3840
```

```
gccataccaa acgacgagcg tgacaccacg atgcctgcag caatggcaac aacgttgcgc    3900

aaactattaa ctggcgaact acttactcta gcttcccggc aacaattaat agactggatg    3960

gaggcggata aagttgcagg accacttctg cgctcggccc ttccggctgg ctggtttatt    4020

gctgataaat ctggagccgg tgagcgtggg tctcgcggta tcattgcagc actggggcca    4080

gatggtaagc cctcccgtat cgtagttatc tacacgacgg ggagtcaggc aactatggat    4140

gaacgaaata gacagatcgc tgagataggt gcctcactga ttaagcattg gtaactgtca    4200

gaccaagttt actcatatat actttagatt gatttaaaac ttcattttta atttaaaagg    4260

atctaggtga agatcctttt tgataatctc atgaccaaaa tcccttaacg tgagttttcg    4320

ttccactgag cgtcagaccc cgtagaaaag atcaaaggat cttcttgaga tccttttttt    4380

ctgcgcgtaa tctgctgctt gcaaacaaaa aaaccaccgc taccagcggt ggtttgtttg    4440

ccggatcaag agctaccaac tctttttccg aaggtaactg gcttcagcag agcgcagata    4500

ccaaatactg tccttctagt gtagccgtag ttaggccacc acttcaagaa ctctgtagca    4560

ccgcctacat acctcgctct gctaatcctg ttaccagtgg ctgctgccag tggcgataag    4620

tcgtgtctta ccgggttgga ctcaagacga tagttaccgg ataaggcgca gcggtcgggc    4680

tgaacggggg gttcgtgcac acagcccagc ttggagcgaa cgacctacac cgaactgaga    4740

tacctacagc gtgagctatg agaaagcgcc acgcttcccg aagggagaaa ggcggacagg    4800

tatccggtaa gcggcagggt cggaacagga gagcgcacga gggagcttcc aggggggaaac   4860

gcctggtatc tttatagtcc tgtcgggttt cgccacctct gacttgagcg tcgattttg    4920

tgatgctcgt cagggggcg gagcctatgg aaaaacgcca gcaacgcggc cttttacgg    4980

ttcctggcct tttgctggcc ttttgctcac atgttctttc ctgcgttatc ccctgattct    5040

gtggataacc gtattaccgc ctttgagtga gctgataccg ctcgccgcag ccgaacgacc    5100

gagcgcagcg agtcagtgag cgaggaagcg gaagagcgcc tgatgcggta ttttctcctt    5160

acgcatctgt gcggtatttc acaccgcata tatggtgcac tctcagtaca atctgctctg    5220

atgccgcata gttaagccag tatacactcc gctatcgcta cgtgactggg tcatggctgc    5280

gccccgacac ccgccaacac ccgctgacgc gccctgacgg gcttgtctgc tcccggcatc    5340

cgcttacaga caagctgtga ccgtctccgg gagctgcatg tgtcagaggt tttcaccgtc    5400

atcaccgaaa cgcgcgaggc agctgcggta aagctcatca gcgtggtcgt gaagcgattc    5460

acagatgtct gcctgttcat ccgcgtccag ctcgttgagt ttctccagaa gcgttaatgt    5520

ctggcttctg ataaagcggg ccatgttaag gcggttttt tcctgtttgg tcactgatgc    5580

ctccgtgtaa gggggatttc tgttcatggg ggtaatgata ccgatgaaac gagagaggat    5640

gctcacgata cgggttactg atgatgaaca tgcccggtta ctggaacgtt gtgagggtaa    5700
```

```
acaactggcg gtatggatgc ggcgggacca gagaaaaatc actcagggtc aatgccagcg    5760

cttcgttaat acagatgtag gtgttccaca gggtagccag cagcatcctg cgatgcagat    5820

ccggaacata atggtgcagg gcgctgactt ccgcgtttcc agactttacg aaacacggaa    5880

accgaagacc attcatgttg ttgctcaggt cgcagacgtt ttgcagcagc agtcgcttca    5940

cgttcgctcg cgtatcggtg attcattctg ctaaccagta aggcaacccc gccagcctag    6000

ccgggtcctc aacgacagga gcacgatcat gcgcacccgt ggccaggacc caacgctgcc    6060

cgagatgcgc cgcgtgcggc tgctggagat ggcggacgcg atggatatgt tctgccaagg    6120

gttggtttgc gcattcacag ttctccgcaa gaattgattg gctccaattc ttggagtggt    6180

gaatccgtta gcgaggtgcc gccggcttcc attcaggtcg aggtggcccg gctccatgca    6240

ccgcgacgca acgcggggag gcagacaagg tatagggcgg cgcctacaat ccatgccaac    6300

ccgttccatg tgctcgccga ggcggcataa atcgccgtga cgatcagcgg tccagtgatc    6360

gaagttaggc tggtaagagc cgcgagcgat ccttgaagct gtccctgatg gtcgtcatct    6420

acctgcctgg acagcatggc ctgcaacgcg ggcatcccga tgccgccgga agcgagaaga    6480

atcataatgg ggaaggccat ccagcctcgc gtcgcgaacg ccagcaagac gtagcccagc    6540

gcgtcggccg ccatgccggc gataatggcc tgcttctcgc cgaaacgttt ggtggcggga    6600

ccagtgacga aggcttgagc gagggcgtgc aagattccga ataccgcaag cgacaggccg    6660

atcatcgtcg cgctccagcg aaagcggtcc tcgccgaaaa tgacccagag cgctgccggc    6720

acctgtccta cgagttgcat gataaagaag acagtcataa gtgcggcgac gatagtcatg    6780

ccccgcgccc accggaagga gctgactggg ttgaaggctc tcaagggcat cggtcgatcg    6840

acgctctccc ttatgcgact cctgcattag gaagcagccc agtagtaggt tgaggccgtt    6900

gagcaccgcc gccgcaagga atggtgcatg caaggagatg gcgcccaaca gtcccccggc    6960

cacggggcct gccaccatac ccacgccgaa acaagcgctc atgagcccga agtggcgagc    7020

ccgatcttcc ccatcggtga tgtcggcgat ataggcgcca gcaaccgcac ctgtggcgcc    7080

ggtgatgccg ccacgatgc gtccggcgta gagg    7114
```

<210> 182

<211> 5584

<212> DNA

<213> Artificial Sequence


<220>

<223> pDONR207

<400> 182

```
gcgagagtag ggaactgcca ggcatcaaat aaaacgaaag gctcagtcgg aagactgggc      60

ctttcgtttt atctgttgtt tgtcggtgaa cgctctcctg agtaggacaa atccgccggg     120

agcggatttg aacgttgtga agcaacggcc cggagggtgg cgggcaggac gcccgccata     180

aactgccagg catcaaacta agcagaaggc catcctgacg gatggccttt ttgcgtttct     240

acaaactctt cctggctagc ggtaatacgg ttatccacag aatcagggga taacgcagga     300

aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaggc cgcgttgctg     360

gcgttttttcc ataggctccg ccccccctgac gagcatcaca aaaatcgacg ctcaagtcag    420

aggtggcgaa acccgacagg actataaaga taccaggcgt ttccccctgg aagctccctc     480

gtgcgctctc ctgttccgac cctgccgctt accggatacc tgtccgcctt tctcccttcg     540

ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc tcagttcggt gtaggtcgtt     600

cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg cgccttatcc     660

ggtaactatc gtcttgagtc caacccggta agacacgact tatcgccact ggcagcagcc     720

actggtaaca ggattagcag agcgaggtat gtaggcggtg ctacagagtt cttgaagtgg     780

tggcctaact acggctacac tagaaggaca gtatttggta tctgcgctct gctgaagcca     840

gttaccttcg gaaaaagagt tggtagctct tgatccggca aacaaaccac cgctggtagc     900

ggtggttttt ttgtttgcaa gcagcagatt acgcgcagaa aaaaggatc tcaagaagat     960

cctttgatct tttctacggg gtctgacgct cagtggaacg aaaactcacg ttaagggatt    1020

ttggtcatga gcttgcgccg tcccgtcaag tcagcgtaat gctctgccag tgttacaacc    1080

aattaaccaa ttctgattag aaaaactcat cgagcatcaa atgaaactgc aatttattca    1140

tatcaggatt atcaatacca tattttttgaa aaagccgttt ctgtaatgaa ggagaaaact    1200

caccgaggca gttccatagg atggcaagat cctggtatcg gtctgcgatt ccgactcgtc    1260

caacatcaat acaacctatt agtagccaac cactagaact atagctagag tcctgggcga    1320

acaaacgatg ctcgccttcc agaaaaccga ggatgcgaac cacttcatcc ggggtcagca    1380

ccaccggcaa gcgccgcgac ggccgaggtc ttccgatctc ctgaagccag ggcagatccg    1440

tgcacagcac cttgccgtag aagaacagca aggccgccaa tgcctgacga tgcgtggaga    1500

ccgaaacctt gcgctcgttc gccagccagg acagaaatgc ctcgacttcg ctgctgccca    1560

aggttgccgg gtgacgcaca ccgtggaaac ggatgaaggc acgaacccag ttgacataag    1620

cctgttcggt tcgtaaactg taatgcaagt agcgtatgcg ctcacgcaac tggtccagaa    1680

ccttgaccga acgcagcggt ggtaacggcg cagtggcggt tttcatggct tgttatgact    1740

gtttttttgt acagtctatg cctcgggcat ccaagcagca agcgcgttac gccgtgggtc    1800

gatgtttgat gttatggagc agcaacgatg ttacgcagca gcaacgatgt tacgcagcag    1860
```

```
ggcagtcgcc ctaaaacaaa gttaggtggc tcaagtatgg gcatcattcg cacatgtagg   1920

ctcggccctg accaagtcaa atccatgcgg gctgctcttg atcttttcgg tcgtgagttc   1980

ggagacgtag ccacctactc ccaacatcag ccggactccg attacctcgg gaacttgctc   2040

cgtagtaaga cattcatcgc gcttgctgcc ttcgaccaag aagcggttgt tggcgctctc   2100

gcggcttacg ttctgcccag gtttgagcag ccgcgtagtg agatctatat ctatgatctc   2160

gcagtctccg gcgagcaccg gaggcagggc attgccaccg cgctcatcaa tctcctcaag   2220

catgaggcca acgcgcttgg tgcttatgtg atctacgtgc aagcagatta cggtgacgat   2280

cccgcagtgg ctctctatac aaagttgggc atacgggaag aagtgatgca ctttgatatc   2340

gacccaagta ccgccaccta acaattcgtt caagccgaga tcggcttccc ggcctaattt   2400

cccctcgtca aaaataaggt tatcaagtga gaaatcacca tgagtgacga ctgaatccgg   2460

tgagaatggc aaaagtttat gcatttcttt ccagacttgt tcaacaggcc agccattacg   2520

ctcgtcatca aaatcactcg catcaaccaa accgttattc attcgtgatt gcgcctgagc   2580

gagacgaaat acgcgatcgc tgttaaaagg acaattacaa acaggaatcg aatgcaaccg   2640

gcgcaggaac actgccagcg catcaacaat attttcacct gaatcaggat attcttctaa   2700

tacctggaat gctgtttttc cggggatcgc agtggtgagt aaccatgcat catcaggagt   2760

acggataaaa tgcttgatgg tcggaagagg cataaattcc gtcagccagt ttagtctgac   2820

catctcatct gtaacatcat tggcaacgct acctttgcca tgtttcagaa acaactctgg   2880

cgcatcgggc ttcccataca agcgatagat tgtcgcacct gattgcccga cattatcgcg   2940

agcccattta tacccatata aatcagcatc catgttggaa tttaatcgcg gcctcgacgt   3000

ttcccgttga atatggctca taacacccc tgtattactg tttatgtaag cagacagttt   3060

tattgttcat gatgatatat ttttatcttg tgcaatgtaa catcagagat tttgagacac   3120

gggccagagc tgcagctgga tggcaaataa tgattttatt ttgactgata gtgacctgtt   3180

cgttgcaaca aattgataag caatgctttc ttataatgcc aactttgtac aagaaagctg   3240

aacgagaaac gtaaaatgat ataaatatca atatattaaa ttagattttg cataaaaaac   3300

agactacata atactgtaaa acacaacata tccagtcact atgaatcaac tacttagatg   3360

gtattagtga cctgtagtcg actaagttgg cagcatcacc cgacgcactt tgcgccgaat   3420

aaatacctgt gacggaagat cacttcgcag aataaataaa tcctggtgtc cctgttgata   3480

ccgggaagcc ctgggccaac tttggcgaaa atgagacgtt gatcggcacg taagaggttc   3540

caactttcac cataatgaaa taagatcact accgggcgta ttttttgagt tatcgagatt   3600

ttcaggagct aaggaagcta aaatggagaa aaaaatcact ggatatacca ccgttgatat   3660

atcccaatgg catcgtaaag aacattttga ggcatttcag tcagttgctc aatgtaccta   3720
```

```
taaccagacc gttcagctgg atattacggc cttttttaaag accgtaaaga aaaataagca   3780

caagttttat ccggccttta ttcacattct tgcccgcctg atgaatgctc atccggaatt   3840

ccgtatggca atgaaagacg gtgagctggt gatatgggat agtgttcacc cttgttacac   3900

cgttttccat gagcaaactg aaacgttttc atcgctctgg agtgaatacc acgacgattt   3960

ccggcagttt ctacacatat attcgcaaga tgtggcgtgt tacggtgaaa acctggccta   4020

tttccctaaa gggtttattg agaatatgtt tttcgtctca gccaatccct gggtgagttt   4080

caccagtttt gatttaaacg tggccaatat ggacaacttc ttcgcccccg ttttcaccat   4140

gggcaaatat tatacgcaag gcgacaaggt gctgatgccg ctggcgattc aggttcatca   4200

tgccgtctgt gatggcttcc atgtcggcag aatgcttaat gaattacaac agtactgcga   4260

tgagtggcag ggcggggcgt aatcgcgtgg atccggctta ctaaaagcca gataacagta   4320

tgcgtatttg cgcgctgatt tttgcggtat aagaatatat actgatatgt atacccgaag   4380

tatgtcaaaa agaggtgtgc tatgaagcag cgtattacag tgacagttga cagcgacagc   4440

tatcagttgc tcaaggcata tatgatgtca atatctccgg tctggtaagc acaaccatgc   4500

agaatgaagc ccgtcgtctg cgtgccgaac gctggaaagc ggaaaatcag gaagggatgg   4560

ctgaggtcgc ccggtttatt gaaatgaacg gctcttttgc tgacgagaac agggactggt   4620

gaaatgcagt ttaaggttta cacctataaa agagagagcc gttatcgtct gtttgtggat   4680

gtacagagtg atattattga cacgcccggg cgacggatgg tgatcccccct ggccagtgca   4740

cgtctgctgt cagataaagt ctcccgtgaa ctttacccgg tggtgcatat cggggatgaa   4800

agctggcgca tgatgaccac cgatatggcc agtgtgccgg tctccgttat cggggaagaa   4860

gtggctgatc tcagccaccg cgaaaatgac atcaaaaacg ccattaacct gatgttctgg   4920

ggaatataaa tgtcaggctc ccttatacac agccagtctg caggtcgata cagtagaaat   4980

tacagaaact ttatcacgtt tagtaagtat agaggctgaa aatccagatg aagccgaacg   5040

acttgtaaga gaaaagtata agagttgtga aattgttctt gatgcagatg attttcagga   5100

ctatgacact agcgtatatg aataggtaga tgtttttatt ttgtcacaca aaaaagaggc   5160

tcgcacctct ttttcttatt tcttttttatg atttaatacg gcattgagga caatagcgag   5220

taggctggat acgacgattc cgtttgagaa gaacatttgg aaggctgtcg gtcgactaag   5280

ttggcagcat cacccgaaga acatttggaa ggctgtcggt cgactacagg tcactaatac   5340

catctaagta gttgattcat agtgactgga tatgttgtgt tttacagtat tatgtagtct   5400

gttttttatg caaaatctaa tttaatatat tgatatttat atcattttac gtttctcgtt   5460

cagcttttttt gtacaaagtt ggcattataa aaaagcattg ctcatcaatt tgttgcaacg   5520

aacaggtcac tatcagtcaa aataaaatca ttatttgggg cccgagatcc atgctagcgt   5580
```

taac                                                                        5584

<210>   183

<211>   7038

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pMAB85

<400>   183
gccttacgca tctgtgcggt atttcacacc gcaggcaagt gcacaaacaa tacttaaata      60

aatactactc agtaataacc tatttcttag cattttttgac gaaatttgct attttgttag     120

agtcttttac accatttgtc tccacacctc cgcttacatc aacaccaata acgccattta     180

atctaagcgc atcaccaaca ttttctggcg tcagtccacc agctaacata aaatgtaagc     240

tttcggggct ctcttgcctt ccaacccagt cagaaatcga gttccaatcc aaaagttcac     300

ctgtcccacc tgcttctgaa tcaaacaagg gaataaacga atgaggtttc tgtgaagctg     360

cactgagtag tatgttgcag tcttttggaa atacgagtct tttaataact ggcaaaccga     420

ggaactcttg gtattcttgc cacgactcat ctccatgcag ttggacgata tcaatgccgt     480

aatcattgac cagagccaaa acatcctcct taggttgatt acgaaacacg ccaaccaagt     540

atttcggagt gcctgaacta tttttatatg cttttacaag acttgaaatt ttccttgcaa     600

taaccgggtc aattgttctc tttctattgg gcacacatat aatacccagc aagtcagcat     660

cggaatctag agcacattct gcggcctctg tgctctgcaa gccgcaaact ttcaccaatg     720

gaccagaact acctgtgaaa ttaataacag acatactcca agctgccttt gtgtgcttaa     780

tcacgtatac tcacgtgctc aatagtcacc aatgccctcc ctcttggccc tctccttttc     840

tttttttcgac cgaattaatt cttaatcggc aaaaaaagaa aagctccgga tcaagattgt     900

acgtaaggtg acaagctatt tttcaataaa gaatatcttc cactactgcc atctggcgtc     960

ataactgcaa agtacacata tattacgatg ctgtctatta aatgcttcct atattatata    1020

tatagtaatg tcgtttatgg tgcactctca gtacaatctg ctctgatgcc gcatagttaa    1080

gccagccccg acacccgcca acacccgctg acgcgccctg acgggcttgt ctgctcccgg    1140

catccgctta cagacaagct gtgaccgtct ccgggagctg catgtgtcag aggttttcac    1200

cgtcatcacc gaaacgcgcg agacgaaagg gcctcgtgat acgcctattt ttataggtta    1260

atgtcatgat aataatggtt tcttaggacg gatcgcttgc ctgtaactta cacgcgcctc    1320

```
gtatctttta atgatggaat aatttgggaa tttactctgt gtttatttat ttttatgttt    1380

tgtatttgga ttttagaaag taaataaaga aggtagaaga gttacggaat gaagaaaaaa    1440

aaataaacaa aggtttaaaa aatttcaaca aaaagcgtac tttacatata tatttattag    1500

acaagaaaag cagattaaat agatatacat tcgattaacg ataagtaaaa tgtaaaatca    1560

caggattttc gtgtgtggtc ttctacacag acaagatgaa acaattcggc attaatacct    1620

gagagcagga agagcaagat aaaaggtagt atttgttggc gatccccta gagtctttta    1680

catcttcgga aaacaaaac tattttttct ttaatttctt tttttacttt ctatttttaa    1740

tttatatatt tatattaaaa aatttaaatt ataattattt ttatagcacg tgatgaaaag    1800

gacccaggtg gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt attttttctaa    1860

atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat    1920

tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc ctttttttgcg    1980

gcattttgcc ttcctgtttt tgctcacca gaaacgctgg tgaaagtaaa agatgctgaa    2040

gatcagttgg gtgcacgagt gggttacatc gaactggatc tcaacagcgg taagatcctt    2100

gagagtttttc gccccgaaga acgttttcca atgatgagca cttttaaagt tctgctatgt    2160

ggcgcggtat tatcccgtat tgacgccggg caagagcaac tcggtcgccg catacactat    2220

tctcagaatg acttggttga gtactcacca gtcacagaaa agcatcttac ggatggcatg    2280

acagtaagag aattatgcag tgctgccata accatgagtg ataacactgc ggccaactta    2340

cttctgacaa cgatcggagg accgaaggag ctaaccgctt ttttttcacaa catgggggat    2400

catgtaactc gccttgatcg ttgggaaccg gagctgaatg aagccatacc aaacgacgag    2460

cgtgacacca cgatgcctgt agcaatggca caacgttgc gcaaactatt aactggcgaa    2520

ctacttactc tagcttcccg gcaacaatta atagactgga tggaggcgga taaagttgca    2580

ggaccacttc tgcgctcggc ccttccggct ggctggttta ttgctgataa atctggagcc    2640

ggtgagcgtg ggtctcgcgg tatcattgca gcactggggc cagatggtaa gccctcccgt    2700

atcgtagtta tctacacgac gggcagtcag gcaactatgg atgaacgaaa tagacagatc    2760

gctgagatag gtgcctcact gattaagcat tggtaactgt cagaccaagt ttactcatat    2820

atactttaga ttgatttaaa acttcatttt taatttaaaa ggatctaggt gaagatcctt    2880

tttgataatc tcatgaccaa aatcccttaa cgtgagtttt cgttccactg agcgtcagac    2940

cccgtagaaa agatcaaagg atcttcttga tccttttt ttctgcgcgt aatctgctgc    3000

ttgcaaacaa aaaaaccacc gctaccagcg gtggtttgtt tgccggatca agagctacca    3060

actctttttc cgaaggtaac tggcttcagc agagcgcaga taccaaatac tgtccttcta    3120

gtgtagccgt agttaggcca ccacttcaag aactctgtag caccgcctac atacctcgct    3180
```

ctgctaatcc tgttaccagt ggctgctgcc agtggcgata agtcgtgtct taccgggttg    3240

gactcaagac gatagttacc ggataaggcg cagcggtcgg gctgaacggg gggttcgtgc    3300

acacagccca gcttggagcg aacgacctac accgaactga gatacctaca gcgtgagcat    3360

tgagaaagcg ccacgcttcc cgaagggaga aaggcggaca ggtatccggt aagcggcagg    3420

gtcggaacag gagagcgcac gagggagctt ccaggggga acgcctggta tctttatagt    3480

cctgtcgggt ttcgccacct ctgacttgag cgtcgatttt tgtgatgctc gtcaggggg    3540

ccgagcctat ggaaaaacgc cagcaacgcg gccttttac ggttcctggc cttttgctgg    3600

ccttttgctc acatgttctt tcctgcgtta tccctgatt ctgtggataa ccgtattacc    3660

gcctttgagt gagctgatac cgctcgccgc agccgaacga ccgagcgcag cgagtcagtg    3720

agcgaggaag cggaagagcg cccaatacgc aaaccgcctc tccccgcgcg ttggccgatt    3780

cattaatgca gctggcacga caggtttccc gactggaaag cgggcagtga gcgcaacgca    3840

attaatgtga gttacctcac tcattaggca ccccaggctt tacactttat gcttccggct    3900

cctatgttgt gtggaattgt gagcggataa caatttcaca caggaaacag ctatgaccat    3960

gattacgcca agctcggaat taaccctcac taaagggaac aaaagctggg taccgggccc    4020

cccctcgaga tccgggatcg aagaaatgat ggtaaatgaa ataggaaatc aaggagcatg    4080

aaggcaaaag acaaatataa gggtcgaacg aaaaataaag tgaaagtgt tgatatgatg    4140

tatttggctt tgcggcgccg aaaaaacgag tttacgcaat tgcacaatca tgctgactct    4200

gtggcggacc cgcgctcttg ccggcccggc gataacgctg ggcgtgaggc tgtgcccggc    4260

ggagttttt gcgcctgcat tttccaaggt ttaccctgcg ctaaggggcg agattggaga    4320

agcaataaga atgccggttg gggttgcgat gatgacgacc acgacaactg gtgtcattat    4380

ttaagttgcc gaaagaacct gagtgcattt gcaacatgag tatactagaa gaatgagcca    4440

agacttgcga gacgcgagtt tgccggtggt gcgaacaata gagcgaccat gaccttgaag    4500

gtgagacgcg cataaccgct agagtacttt gaagaggaaa cagcaatagg gttgctacca    4560

gtataaatag acaggtacat acaacactgg aaatggttgt ctgtttgagt acgctttcaa    4620

ttcatttggg tgtgcacttt attatgttac aatatggaag ggaactttac acttctccta    4680

tgcacatata ttaattaaag tccaatgcta gtagagaagg ggggtaacac ccctccgcgc    4740

tcttttccga ttttttcta aaccgtggaa tatttcggat atccttttgt tgtttccggg    4800

tgtacaatat ggacttcctc ttttctggca accaaaccca tacatcggga ttcctataat    4860

accttcgttg gtctccctaa catgtaggtg gcggaggga gatatacaat agaacagata    4920

ccagacaaga cataatgggc taaacaagac tacaccaatt acactgcctc attgatggtg    4980

gtacataacg aactaatact gtagccctag acttgatagc catcatcata tcgaagtttc    5040

```
actacccttt ttccatttgc catctattga agtaataata ggcgcatgca acttcttttc    5100

tttttttttc ttttctctct cccccgttgt tgtctcacca tatccgcaat gacaaaaaaa    5160

atgatggaag acactaaagg aaaaaattaa cgacaaagac agcaccaaca gatgtcgttg    5220

ttccagagct gatgaggggt atcttcgaac acacgaaact ttttccttcc ttcattcacg    5280

cacactactc tctaatgagc aacggtatac ggccttcctt ccagttactt gaatttgaaa    5340

taaaaaaagt ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatcttttg    5400

tttcctcgtc attgttctcg ttcccttttct tccttgtttc tttttctgca caatatttca   5460

agctatacca agcatacaat caactccaag cttatgccca agaagaagcg gaaggtctcg    5520

agcggcgcca attttaatca aagtgggaat attgctgata gctcattgtc cttcactttc    5580

actaacagta gcaacggtcc gaacctcata acaactcaaa caaattctca agcgctttca    5640

caaccaattg cctcctctaa cgttcatgat aacttcatga ataatgaaat cacggctagt    5700

aaaattgatg atggtaataa ttcaaaacca ctgtcacctg gttggacgga ccaaactgcg    5760

tataacgcgt ttggaatcac tacagggatg tttaatacca ctacaatgga tgatgtatat    5820

aactatctat tcgatgatga agatacccca ccaaacccaa aaaaagaggg tgggtcgatc    5880

acaagtttgt acaaaaaagc aggcttgtcg accccgggaa ttcagatcta ctagtgcggc    5940

cgcacgcgta cccagctttc ttgtacaaag tggtgacgtc gagctccta tagtgagtcg     6000

tattacactg gccgtcgttt tacaacgtcg tgactgggaa aacaccggtg agctctaagt    6060

aagtaacggc cgccaccgcg gtggagcttt ggacttcttc gccagaggtt tggtcaagtc    6120

tccaatcaag gttgtcggct tgtctacctt gccagaaatt tacgaaaaga tggaaaaggg    6180

tcaaatcgtt ggtagatacg ttgttgacac ttctaaataa gcgaatttct tatgatttat    6240

gatttttatt attaaataag ttataaaaaa aataagtgta tacaaatttt aaagtgactc    6300

ttaggtttta aaacgaaaat tcttgttctt gagtaactct ttcctgtagg tcaggttgct    6360

ttctcaggta tagcatgagg tcgctcttat tgaccacacc tctaccggca tgccgagcaa    6420

atgcctgcaa atcgctcccc atttcaccca attgtagata tgctaactcc agcaatgagt    6480

tgatgaatct cggtgtgtat tttatgtcct cagaggacaa tacctgttgt aatcgttctt    6540

ccacacggat ccgcatcagg cgaaattgta acgttaata ttttgttaaa attcgcgtta     6600

aatatttgtt aaatcagctc attttttaac caataggccg aaatcggcaa aatcccttat    6660

aaatcaaaag aatagaccga gatagggttg agtgttgttc cagtttggaa caagagtcca    6720

ctattaaaga acgtggactc caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc    6780

ccactacgtg aaccatcacc ctaatcaagt tttttggggt cgaggtgccg taaagcacta    6840

aatcggaacc ctaaagggag cccccgattt agagcttgac ggggaaagcc ggcgaacgtg    6900
```

```
gcgagaaagg aagggaagaa agcgaaagga gcgggcgcta gggcgctggc aagtgtagcg    6960

gtcacgctgc gcgtaaccac cacacccgcc gcgcttaatg cgccgctaca gggcgcgtcc    7020

cattcgccat tcactgca                                                  7038
```

<210>  184

<211>  7146

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pMAB86

<400>  184
```
gacgaaaggg cctcgtgata cgcctatttt tataggttaa tgtcatgata ataatggttt      60

cttaggacgg atcgcttgcc tgtaacttac acgcgcctcg tatcttttaa tgatggaata     120

atttgggaat ttactctgtg tttatttatt tttatgtttt gtatttggat tttagaaagt     180

aaataaagaa ggtagaagag ttacggaatg aagaaaaaaa aataaacaaa ggtttaaaaa     240

atttcaacaa aaagcgtact ttacatatat atttattaga caagaaaagc agattaaata     300

gatatacatt cgattaacga taagtaaaat gtaaaatcac aggattttcg tgtgtggtct     360

tctacacaga caagatgaaa caattcggca ttaatacctg agagcaggaa gagcaagata     420

aaaggtagta tttgttggcg atccccctag agtcttttac atcttcggaa aacaaaaact     480

attttttctt taatttcttt ttttactttc tatttttaat ttatatattt atattaaaaa     540

atttaaatta taattatttt tatagcacgt gatgaaaagg acccaggtgg cacttttcgg     600

ggaaatgtgc gcggaacccc tatttgttta tttttctaaa tacattcaaa tatgtatccg     660

ctcatgagac aataaccctg ataaatgctt caataatatt gaaaaaggaa gagtatgagt     720

attcaacatt tccgtgtcgc ccttattccc ttttttgcgg cattttgcct tcctgttttt     780

gctcacccag aaacgctggt gaaagtaaaa gatgctgaag atcagttggg tgcacgagtg     840

ggttacatcg aactggatct caacagcggt aagatccttg agagttttcg ccccgaagaa     900

cgttttccaa tgatgagcac ttttaaagtt ctgctatgtg gcgcggtatt atcccgtatt     960

gacgccgggc aagagcaact cggtcgccgc atacactatt ctcagaatga cttggttgag    1020

tactcaccag tcacagaaaa gcatcttacg gatggcatga cagtaagaga attatgcagt    1080

gctgccataa ccatgagtga taacactgcg gccaacttac ttctgacaac gatcggagga    1140

ccgaaggagc taaccgcttt ttttcacaac atgggggatc atgtaactcg ccttgatcgt    1200
```

```
tgggaaccgg agctgaatga agccatacca aacgacgagc gtgacaccac gatgcctgta    1260

gcaatggcaa caacgttgcg caaactatta actggcgaac tacttactct agcttcccgg    1320

caacaattaa tagactggat ggaggcggat aaagttgcag gaccacttct gcgctcggcc    1380

cttccggctg gctggtttat tgctgataaa tctggagccg gtgagcgtgg gtctcgcggt    1440

atcattgcag cactgggggcc agatggtaag ccctcccgta tcgtagttat ctacacgacg    1500

ggcagtcagg caactatgga tgaacgaaat agacagatcg ctgagatagg tgcctcactg    1560

attaagcatt ggtaactgtc agaccaagtt tactcatata tactttagat tgatttaaaa    1620

cttcattttt aatttaaaag gatctaggtg aagatccttt ttgataatct catgaccaaa    1680

atcccttaac gtgagttttc gttccactga gcgtcagacc ccgtagaaaa gatcaaagga    1740

tcttcttgag atcctttttt tctgcgcgta atctgctgct tgcaaacaaa aaaaccaccg    1800

ctaccagcgg tggtttgttt gccggatcaa gagctaccaa ctctttttcc gaaggtaact    1860

ggcttcagca gagcgcagat accaaatact gtccttctag tgtagccgta gttaggccac    1920

cacttcaaga actctgtagc accgcctaca tacctcgctc tgctaatcct gttaccagtg    1980

gctgctgcca gtggcgataa gtcgtgtctt accgggttgg actcaagacg atagttaccg    2040

gataaggcgc agcggtcggg ctgaacgggg ggttcgtgca cacagcccag cttggagcga    2100

acgacctaca ccgaactgag atacctacag cgtgagcatt gagaaagcgc cacgcttccc    2160

gaagggagaa aggcggacag gtatccggta agcggcaggg tcggaacagg agagcgcacg    2220

agggagcttc caggggggaa cgcctggtat ctttatagtc ctgtcgggtt tcgccacctc    2280

tgacttgagc gtcgattttt gtgatgctcg tcaggggggc cgagcctatg gaaaaacgcc    2340

agcaacgcgg cctttttacg gttcctggcc ttttgctggc cttttgctca catgttcttt    2400

cctgcgttat cccctgattc tgtggataac cgtattaccg cctttgagtg agctgatacc    2460

gctcgccgca gccgaacgac cgagcgcagc gagtcagtga gcgaggaagc ggaagagcgc    2520

ccaatacgca aaccgcctct ccccgcgcgt tggccgattc attaatgcag ctggcacgac    2580

aggtttcccg actggaaagc gggcagtgag cgcaacgcaa ttaatgtgag ttacctcact    2640

cattaggcac cccaggcttt acactttatg cttccggctc ctatgttgtg tggaattgtg    2700

agcggataac aatttcacac aggaaacagc tatgaccatg attacgccaa gctcggaatt    2760

aaccctcact aaagggaaca aaagctgggt accgggcccc ccctcgagat ccgggatcga    2820

agaaatgatg gtaaatgaaa taggaaatca aggagcatga aggcaaaaga caaatataag    2880

ggtcgaacga aaaataaagt gaaaagtgtt gatatgatgt atttggcttt gcggcgccga    2940

aaaaacgagt ttacgcaatt gcacaatcat gctgactctg tggcggaccc gcgctcttgc    3000

cggcccggcg ataacgctgg gcgtgaggct gtgcccggcg gagttttttg cgcctgcatt    3060
```

```
ttccaaggtt taccctgcgc taaggggcga gattggagaa gcaataagaa tgccggttgg    3120

ggttgcgatg atgacgacca cgacaactgg tgtcattatt taagttgccg aaagaacctg    3180

agtgcatttg caacatgagt atactagaag aatgagccaa gacttgcgag acgcgagttt    3240

gccggtggtg cgaacaatag agcgaccatg accttgaagg tgagacgcgc ataaccgcta    3300

gagtactttg aagaggaaac agcaataggg ttgctaccag tataaataga caggtacata    3360

caacactgga aatggttgtc tgtttgagta cgctttcaat tcatttgggt gtgcacttta    3420

ttatgttaca atatggaagg gaactttaca cttctcctat gcacatatat taattaaagt    3480

ccaatgctag tagagaaggg gggtaacacc cctccgcgct cttttccgat ttttttctaa    3540

accgtggaat atttcggata tccttttgtt gtttccgggt gtacaatatg gacttcctct    3600

tttctggcaa ccaaacccat acatcgggat tcctataata ccttcgttgg tctccctaac    3660

atgtaggtgg cggaggggag atatacaata gaacagatac cagacaagac ataatgggct    3720

aaacaagact acaccaatta cactgcctca ttgatggtgg tacataacga actaatactg    3780

tagccctaga cttgatagcc atcatcatat cgaagtttca ctaccctttt tccatttgcc    3840

atctattgaa gtaataatag gcgcatgcaa cttcttttct ttttttttct tttctctctc    3900

ccccgttgtt gtctcaccat atccgcaatg acaaaaaaaa tgatggaaga cactaaagga    3960

aaaaattaac gacaaagaca gcaccaacag atgtcgttgt tccagagctg atgaggggta    4020

tcttcgaaca cacgaaactt tttccttcct tcattcacgc acactactct ctaatgagca    4080

acggtatacg gccttccttc cagttacttg aatttgaaat aaaaaaagtt tgccgctttg    4140

ctatcaagta taaatagacc tgcaattatt aatcttttgt ttcctcgtca ttgttctcgt    4200

tccctttctt ccttgtttct ttttctgcac aatatttcaa gctataccaa gcatacaatc    4260

aactccaagc ttatgcccaa gaagaagcgg aaggtctcga gcggcgccaa ttttaatcaa    4320

agtgggaata ttgctgatag ctcattgtcc ttcactttca ctaacagtag caacggtccg    4380

aacctcataa caactcaaac aaattctcaa gcgctttcac aaccaattgc ctcctctaac    4440

gttcatgata acttcatgaa taatgaaatc acggctagta aaattgatga tggtaataat    4500

tcaaaaccac tgtcacctgg ttggacggac caaactgcgt ataacgcgtt tggaatcact    4560

acagggatgt ttaataccac tacaatggat gatgtatata actatctatt cgatgatgaa    4620

gataccccac caaacccaaa aaaagagggt gggtcgatca caagtttgta caaaaaagca    4680

ggcttgtcga ccccgggaat tcagatctac tagtgcggcc gcacgcgtac ccagctttct    4740

tgtacaaagt ggtgacgtcg agctctaagt aagtaacggc cgccaccgcg gtggagcttt    4800

ggacttcttc gccagaggtt tggtcaagtc tccaatcaag gttgtcggct tgtctacctt    4860

gccagaaatt tacgaaaaga tggaaaaggg tcaaatcgtt ggtagatacg ttgttgacac    4920
```

```
ttctaaataa gcgaatttct tatgatttat gatttttatt attaaataag ttataaaaaa    4980

aataagtgta tacaaatttt aaagtgactc ttaggtttta aaacgaaaat tcttgttctt    5040

gagtaactct ttcctgtagg tcaggttgct ttctcaggta tagcatgagg tcgctcttat    5100

tgaccacacc tctaccggca tgccgagcaa atgcctgcaa atcgctcccc atttcaccca    5160

attgtagata tgctaactcc agcaatgagt tgatgaatct cggtgtgtat tttatgtcct    5220

cagaggacaa tacctgttgt aatcgttctt ccacacggat cccaattcgc cctatagtga    5280

gtcgtattac aattcactgg ccgtcgtttt acaacgtcgt gactgggaaa accctggcgt    5340

tacccaactt aatcgccttg cagcacatcc ccctttcgcc agctggcgta atagcgaaga    5400

ggcccgcacc gatcgccctt cccaacagtt gcgcagcctg aatggcgaat ggacgcgccc    5460

tgtagcggcg cattaagcgc ggcgggtgtg gtggttacgc gcagcgtgac cgctacactt    5520

gccagcgccc tagcgcccgc tcctttcgct ttcttccctt cctttctcgc cacgttcgcc    5580

ggctttcccc gtcaagctct aaatcggggg ctccctttag ggttccgatt tagtgcttta    5640

cggcacctcg accccaaaaa acttgattag ggtgatggtt cacgtagtgg gccatcgccc    5700

tgatagacgg tttttcgccc tttgacgttg gagtccacgt tctttaatag tggactcttg    5760

ttccaaactg gaacaacact caaccctatc tcggtctatt cttttgattt ataagggatt    5820

ttgccgattt cggcctattg gttaaaaaat gagctgattt aacaaaaatt taacgcgaat    5880

tttaacaaaa tattaacgtt tacaatttcc tgatgcggta ttttctcctt acgcatctgt    5940

gcggtatttc acaccgcagg caagtgcaca acaatactt aaataaatac tactcagtaa    6000

taacctattt cttagcattt ttgacgaaat ttgctatttt gttagagtct tttacaccat    6060

ttgtctccac acctccgctt acatcaacac caataacgcc atttaatcta agcgcatcac    6120

caacattttc tggcgtcagt ccaccagcta acataaaatg taagctttcg gggctctctt    6180

gccttccaac ccagtcagaa atcgagttcc aatccaaaag ttcacctgtc ccacctgctt    6240

ctgaatcaaa caagggaata aacgaatgag gtttctgtga agctgcactg agtagtatgt    6300

tgcagtcttt tggaaatacg agtctttaa taactggcaa accgaggaac tcttggtatt    6360

cttgccacga ctcatctcca tgcagttgga cgatatcaat gccgtaatca ttgaccagag    6420

ccaaaacatc ctccttaggt tgattacgaa acacgccaac caagtatttc ggagtgcctg    6480

aactattttt atatgctttt acaagacttg aaattttcct tgcaataacc gggtcaattg    6540

ttctctttct attgggcaca catataatac ccagcaagtc agcatcggaa tctagagcac    6600

attctgcggc ctctgtgctc tgcaagccgc aaactttcac caatggacca gaactacctg    6660

tgaaattaat aacagacata ctccaagctg cctttgtgtg cttaatcacg tatactcacg    6720

tgctcaatag tcaccaatgc cctccctctt ggccctctcc ttttcttttt tcgaccgaat    6780
```

```
taattcttaa tcggcaaaaa aagaaaagct ccggatcaag attgtacgta aggtgacaag    6840

ctatttttca ataaagaata tcttccacta ctgccatctg gcgtcataac tgcaaagtac    6900

acatatatta cgatgctgtc tattaaatgc ttcctatatt atatatatag taatgtcgtt    6960

tatggtgcac tctcagtaca atctgctctg atgccgcata gttaagccag ccccgacacc    7020

cgccaacacc cgctgacgcg ccctgacggg cttgtctgct cccggcatcc gcttacagac    7080

aagctgtgac cgtctccggg agctgcatgt gtcagaggtt ttcaccgtca tcaccgaaac    7140

gcgcga                                                               7146
```

<210> 185

<211> 64

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR1A multiple cloning site

<220>

<221> CDS

<222> (1)..(63)

<223>


```
<400> 185
act ttg tac aaa aaa gca ggc ttt aaa gga acc aat tca gtc gac tgg    48
Thr Leu Tyr Lys Lys Ala Gly Phe Lys Gly Thr Asn Ser Val Asp Trp
1               5                  10                 15

atc cgg tac cga att c                                               64
Ile Arg Tyr Arg Ile
            20
```


<210> 186

<211> 21

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR1A multiple cloning site

<400> 186

```
Thr Leu Tyr Lys Lys Ala Gly Phe Lys Gly Thr Asn Ser Val Asp Trp
1               5                   10                  15


Ile Arg Tyr Arg Ile
            20
```

<210> 187

<211> 49

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR1A multiple cloning site

<400> 187
```
gaattcgcgg ccgcactcga gatatctaga cccagctttc ttgtacaaa              49
```

<210> 188

<211> 62

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR2B multiple cloning site

<220>

<221> CDS

<222> (1)..(60)

<223>


<400> 188
```
ttg tac aaa aaa gca ggc tgg cgc cgg aac caa ttc agt cga ctg gat    48
Leu Tyr Lys Lys Ala Gly Trp Arg Arg Asn Gln Phe Ser Arg Leu Asp
1               5                   10                  15

ccg gta ccg aat tc                                                 62
Pro Val Pro Asn
            20
```

<210> 189

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR2B multiple cloning site

<400> 189

Leu Tyr Lys Lys Ala Gly Trp Arg Arg Asn Gln Phe Ser Arg Leu Asp
1               5                   10                  15

Pro Val Pro Asn
            20

<210> 190

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR2B multiple cloning site

<220>

<221> CDS

<222> (2)..(49)

<223>

<400> 190
g aat tcg cgg ccg cac tcg aga tat cta gac cca gct ttc ttg tac aaa      49
  Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
  1               5                   10                  15

g                                                                       50

<210> 191

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR2B multiple cloning site

<400> 191

Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
1               5               10              15

<210> 192

<211> 69

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR3C multiple cloning site

<220>

<221> CDS

<222> (1)..(63)

<223>

<400> 192
ttg tac aaa aaa gca ggc tct tta aag gaa cca att cag tcg act gga     48
Leu Tyr Lys Lys Ala Gly Ser Leu Lys Glu Pro Ile Gln Ser Thr Gly
1               5               10              15

tcc ggt acc gaa ttc gatcgc                                          69
Ser Gly Thr Glu Phe
            20

<210> 193

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR3C multiple cloning site

<400> 193

```
Leu Tyr Lys Lys Ala Gly Ser Leu Lys Glu Pro Ile Gln Ser Thr Gly
1               5               10              15

Ser Gly Thr Glu Phe
            20
```

<210> 194

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR3C multiple cloning site

<220>

<221> CDS

<222> (2)..(49)

<223>

<400> 194
```
g aat tcg cgg ccg cac tcg aga tat cta gac cca gct ttc ttg tac aaa    49
  Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
  1               5               10              15

g                                                                    50
```

<210> 195

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR3C multiple cloning site

<400> 195

```
Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
1               5               10              15
```

<210> 196

<211> 64

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR4 multiple cloning site

<220>

<221> CDS

<222> (1)..(63)

<223>


<400> 196
ttg tac aaa aaa gca ggc tcc acc atg gga acc aat tca gtc gac tgg          48
Leu Tyr Lys Lys Ala Gly Ser Thr Met Gly Thr Asn Ser Val Asp Trp
1               5                   10                  15

atc cgg tac cga att c                                                    64
Ile Arg Tyr Arg Ile
            20


<210> 197

<211> 21

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR4 multiple cloning site

<400> 197

Leu Tyr Lys Lys Ala Gly Ser Thr Met Gly Thr Asn Ser Val Asp Trp
1               5                   10                  15


Ile Arg Tyr Arg Ile
            20


<210> 198

<211> 50

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR4 multiple cloning site

<220>

<221> CDS

<222> (2)..(49)

<223>


<400> 198
g aat tcg cgg ccg cac tcg aga tat cta gac cca gct ttc ttg tac aaa     49
  Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
  1               5                   10                  15

g                                                                     50


<210> 199

<211> 16

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR4 multiple cloning site

<400> 199

Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
1               5                   10                  15


<210> 200

<211> 66

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR5 multiple cloning site

<220>

<221> CDS

<222> (1)..(63)

<223>

<400> 200
ttg tac aaa aaa gca ggc ttt cat atg gga acc aat tca gtc gac tgg     48
Leu Tyr Lys Lys Ala Gly Phe His Met Gly Thr Asn Ser Val Asp Trp
1               5                   10                  15

atc cgg tac cga att cgc     66
Ile Arg Tyr Arg Ile
            20

<210> 201

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR5 multiple cloning site

<400> 201

Leu Tyr Lys Lys Ala Gly Phe His Met Gly Thr Asn Ser Val Asp Trp
1               5                   10                  15

Ile Arg Tyr Arg Ile
            20

<210> 202

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR5 multiple cloning site

<400> 202
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g     51

<210> 203

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR6 multiple cloning site

<220>

<221> CDS

<222> (1)..(60)

<223>


<400> 203
```
ttg tac aaa aaa gca ggc tgc atg cga acc aat tca gtc gac tgg atc    48
Leu Tyr Lys Lys Ala Gly Cys Met Arg Thr Asn Ser Val Asp Trp Ile
1               5                   10                  15

cgg tac cga att cgc                                                63
Arg Tyr Arg Ile
            20
```

<210> 204

<211> 20

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR6 multiple cloning site

<400> 204

```
Leu Tyr Lys Lys Ala Gly Cys Met Arg Thr Asn Ser Val Asp Trp Ile
1               5                   10                  15


Arg Tyr Arg Ile
            20
```

<210> 205

<211> 51

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR6 multiple cloning site

<400> 205
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g          51


<210> 206

<211> 84

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR7 multiple cloning site

<220>

<221> CDS

<222> (1)..(81)

<223>


<400> 206
ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga acc gtt          48
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Val
1               5                   10                  15

tca tgc atc gtc gac tgg atc cgg tac cga att cgc          84
Ser Cys Ile Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25


<210> 207

<211> 27

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR7 multiple cloning site

<400> 207

```
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Val
1               5                   10                  15

Ser Cys Ile Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25
```

<210> 208

<211> 51

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR7 multiple cloning site

<400> 208
```
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g          51
```

<210> 209

<211> 81

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR8 multiple cloning site

<220>

<221> CDS

<222> (1)..(78)

<223>


<400> 209
```
ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga acc atg     48
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met
1               5                   10                  15

gac cta gtc gac tgg atc cgg tac cga att cgc                         81
Asp Leu Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25
```

<210> 210

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR8 multiple cloning site

<400> 210

Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met
1               5                   10                  15

Asp Leu Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25

<210> 211

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR8 multiple cloning site

<400> 211
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g          51

<210> 212

<211> 81

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<220>

<221> CDS

<222> (1)..(78)

<223>

<400> 212
```
ttg tac aaa aaa gca ggc ttt gaa aac ctg tat ttt caa gga cat atg        48
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly His Met
1               5               10              15

aga tct gtc gac tgg atc cgg tac cga att cgc                            81
Arg Ser Val Asp Trp Ile Arg Tyr Arg Ile
            20              25
```

<210> 213

<211> 26

<212> PRT

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<400> 213

```
Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly His Met
1               5               10              15

Arg Ser Val Asp Trp Ile Arg Tyr Arg Ile
            20              25
```

<210> 214

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> pENTR9 multiple cloning site

<400> 214
```
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g              51
```

<210> 215

<211> 84

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR10 multiple cloning site

<220>

<221> CDS

<222> (1)..(81)

<223>


<400> 215
ttg tac aaa aaa gca ggc ttc gaa cta agg aaa tac tta cat atg gga         48
Leu Tyr Lys Lys Ala Gly Phe Glu Leu Arg Lys Tyr Leu His Met Gly
1               5                   10                  15

acc aat tca gtc gac tgg atc cgg tac cga att cgc                         84
Thr Asn Ser Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25


<210> 216

<211> 27

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR10 multiple cloning site

<400> 216

Leu Tyr Lys Lys Ala Gly Phe Glu Leu Arg Lys Tyr Leu His Met Gly
1               5                   10                  15


Thr Asn Ser Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25


<210> 217

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223>  pENTR10 multiple cloning site

<400>  217
agaattcgcg gccgcactcg agatatctag acccagcttt cttgtacaaa g        51


<210>  218

<211>  88

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pENTR11 multiple cloning site

<220>

<221>  CDS

<222>  (1)..(87)

<223>


<400>  218
ttg tac aaa aaa gca ggc ttc gaa gga gat aga acc aat tct cta agg        48
Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg
1               5                   10                  15

aaa tac tta acc atg gtc gac tgg atc cgg tac cga att c        88
Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25


<210>  219

<211>  29

<212>  PRT

<213>  Artificial Sequence


<220>

<223>  pENTR11 multiple cloning site

<400>  219

Leu Tyr Lys Lys Ala Gly Phe Glu Gly Asp Arg Thr Asn Ser Leu Arg
1               5                   10                  15

Lys Tyr Leu Thr Met Val Asp Trp Ile Arg Tyr Arg Ile
            20                  25

<210> 220

<211> 50

<212> DNA

<213> Artificial Sequence


<220>

<223> pENTR11 multiple cloning site

<220>

<221> CDS

<222> (2)..(49)

<223>


<400> 220
g aat tcg cgg ccg cac tcg aga tat cta gac cca gct ttc ttg tac aaa     49
  Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
  1               5                   10                  15

g                                                                     50


<210> 221

<211> 16

<212> PRT

<213> Artificial Sequence


<220>

<223> pENTR11 multiple cloning site

<400> 221

Asn Ser Arg Pro His Ser Arg Tyr Leu Asp Pro Ala Phe Leu Tyr Lys
1               5                   10                  15


<210> 222

<211> 120

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST1

<400> 222
atgagctgtt gacaattaat catccggctc gtataatgtg tggaattgtg agcggataac      60

aatttcacac aggaaacaga caggtatagg atcacaagtt tgtacaaaaa agctgaacga     120

<210> 223

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST2

<220>

<221> CDS

<222> (94)..(135)

<223>

<400> 223
aatattctga aatgagctgt tgacaattaa tcatccggtc cgtataatct gtggaattgt      60

gagcggataa caatttcaca caggaaacag acc atg tcg tac tac cat cac cat     114
                                     Met Ser Tyr Tyr His His His
                                     1               5

cac cat cac ggc atc aca agt ttgtacaaaa aagctgaa                       153
His His His Gly Ile Thr Ser
        10

<210> 224

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223>    pDEST2

<400>    224

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser
1                 5                 10


<210>    225

<211>    153

<212>    DNA

<213>    Artificial Sequence


<220>

<223>    pDEST3

<220>

<221>    CDS

<222>    (106)..(120)

<223>


<400>    225
cggttctggc aaatattctg aaatgagctg ttgacaatta atcatcggct cgtataatgt        60

gtggaattgt gagcggataa caatttcaca caggaaacag tattc atg tcc cct ata      117
                                                 Met Ser Pro Ile
                                                 1

cta ggttattgga aaattaaggg ccttgtgcaa ccc                              153
Leu
5


<210>    226

<211>    5

<212>    PRT

<213>    Artificial Sequence


<220>

<223>    pDEST3

<400>    226

Met Ser Pro Ile Leu
1               5

<210> 227

<211> 102

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST3

<220>

<221> CDS

<222> (10)..(63)

<223>


<400> 227
ctggttccg cgt gga tct cgt cgt gca tct gtt gga tcc cca tca aca agt     51
          Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser
          1               5                   10

ttg tac aaa aaa gctgaacgag aaacgtaaaa tgatataaat atcaatata           102
Leu Tyr Lys Lys
15


<210> 228

<211> 18

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST3

<400> 228

Arg Gly Ser Arg Arg Ala Ser Val Gly Ser Pro Ser Thr Ser Leu Tyr
1               5                   10                  15


Lys Lys


<210> 229

<211> 255

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST4

<220>

<221> CDS

<222> (97)..(246)

<223>


<400> 229
gcaaatattc tgaaatgagc tgttgacaat taatcatccg gtccgtataa tctgtggaat          60

tgtgagcgga taacaatttc acacaggaaa cagacc atg ggt cat cat cat cat         114
                                         Met Gly His His His His
                                         1               5

cat cac gat tac gat atc cca acg acc gaa aac ctg tat ttt cag ggc         162
His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn Leu Tyr Phe Gln Gly
            10              15                  20

gcc cat atg agc gat aaa att att cac ctg act gac gac agt gat gac         210
Ala His Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Asp Asp
        25              30                  35

gat gac aag gta ccc atc aca agt ttg tac aaa aaa gctgaacga             255
Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr Lys Lys
    40              45                  50


<210> 230

<211> 50

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST4

<400> 230

Met Gly His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu
1               5                   10                  15


Asn Leu Tyr Phe Gln Gly Ala His Met Ser Asp Lys Ile Ile His Leu
            20                  25                  30

Thr Asp Asp Ser Asp Asp Asp Asp Lys Val Pro Ile Thr Ser Leu Tyr
     35                     40                 45

Lys Lys
    50

<210> 231

<211> 204

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST5

<400> 231
```
aggcacccca ggctttacac tttatgcttc cggctcgtat gttgtgtgga attgtgagcg      60

gataacaatt tcacacagga aacagctatg accatgatta cgccaagctc taatacgact     120

cactataggg aaagctggta cgcctgcagg taccggtccg gaattcccgg gtcgacgatc     180

acaagtttgt acaaaaaagc tgaa                                            204
```

<210> 232

<211> 204

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST5

<400> 232
```
tttacgtttc tcgttcagct ttcttgtaca aagtggtgat cactagtcgg cggccgctct      60

agaggatcca agcttacgta cgcgtgcatg cgacgtcata gctcttctat agtgtcacct     120

aaattcaatt cactggccgt cgttttacaa cgtcgtgact gggaaaaccc tggcgttacc     180

caacttaatc gccttgcagc acat                                            204
```

<210> 233

<211> 204

<212> DNA

<210> 233

<220>

<223> pDEST6

<400> 233
taacgccagg gttttcccag tcacgacgtt gtaaaacgac ggccagtgaa ttgaatttag      60

gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagcttg gatcctctag     120

agcggccgcc gactagtgat cacaagtttg tacaaaaaag ctgaacgaga aacgtaaaat     180

gatataaata tcaatatatt aaat     204

<210> 234

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST6

<400> 234
tatttatatc attttacgtt tctcgttcag ctttcttgta caaagtggtg atcgtcgacc      60

cgggaattcc ggaccggtac ctgcaggcgt accagctttc cctatagtga gtcgtattag     120

agcttggcgt aatcatggtc atagctgttt cctgtgtgaa attgttatcc gctcacaatt     180

ccacacaaca tacgagccgg aagcataaag tgtaaagcct ggggtgccta atgagtgagc     240

taactcacat taatt     255

<210> 235

<211> 306

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST7

<400> 235
ccattgacgc aaatgggcgg taggcgtgta cggtgggagg tctatataag cagagctcgt      60

ttagtgaacc gtcagatcgc ctggagacgc catccacgct gttttgacct ccatagaaga     120

```
caccgggacc gatccagcct ccggactcta gcctaggccg cggagcggat aacaatttca    180

cacaggaaac agctatgacc actaggcttt tgcaaaaagc tatttaggtg acactataga    240

aggtacgcct gcaggtaccg gtccggaatt cccatcacaa gtttgtacaa aaaagctgaa    300

cgagaa                                                                306
```

<210> 236

<211> 204

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST8

<400> 236
```
cgtatactcc ggaatattaa tagatcatgg agataattaa aatgataacc atctcgcaaa     60

taaataagta ttttactgtt ttcgtaacag ttttgtaata aaaaaaccta taaatattcc    120

ggattattca taccgtccca ccatcgggcg cggatcatca caagtttgta caaaaaagct    180

gaacgagaaa cgtaaaatga tata                                            204
```

<210> 237

<211> 153

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST9

<400> 237
```
ttggcgaggg acattaaggc gtttaagaaa ttgagaggac ctgttataca cctctacggc     60

ggtcctagat tggtgcgtta atacacagaa ttctgattgg atcccggtcc gaagcgcgct    120

ttcccatcaa caagtttgta caaaaaagct gaa                                  153
```

<210> 238

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223>  pDEST10

<220>

<221>  CDS

<222>  (109)..(201)

<223>

<400>  238
aataagtat tttactgttt tcgtaacagt tttgtaataa aaaaacctat aaatattccg        60

gattattcat accgtcccac catcgggcgc ggatctcggt ccgaaacc atg tcg tac       117
                                                     Met Ser Tyr
                                                       1

tac cat cac cat cac cat cac gat tac gat atc cca acg acc gaa aac       165
Tyr His His His His His His Asp Tyr Asp Ile Pro Thr Thr Glu Asn
  5                   10                  15

ctg tat ttt cag ggc atc aca agt ttg tac aaa aaa gct                   204
Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys
20                  25                  30

<210>  239

<211>  31

<212>  PRT

<213>  Artificial Sequence

<220>

<223>  pDEST10

<400>  239

Met Ser Tyr Tyr His His His His His His Asp Tyr Asp Ile Pro Thr
1               5                   10                  15

Thr Glu Asn Leu Tyr Phe Gln Gly Ile Thr Ser Leu Tyr Lys Lys
            20              25                  30

<210>  240

<211>  204

<212>  DNA

<213>   Artificial Sequence


<220>

<223>   pDEST11

<400>   240
tagtgaaccg tcagatcgcc tggagacgcc atccacgctg ttttgacctc catagaagac          60

accgggaccg atccagcctc cgcggccccg aattcgagct cggtacccgg ggatcctcta         120

gagtcgaggt cgacggtatc gataagcttg atatcaacaa gtttgtacaa aaaagctgaa         180

cgagaaacgt aaaatgatat aaat                                                204


<210>   241

<211>   255

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST12.2

<400>   241
accgtcagat cgcctggaga cgccatccac gctgttttga cctccataga agacaccggg          60

accgatccag cctccggact ctagcctagg ccgcggagcg ataacaatt tcacacagga         120

aacagctatg accattaggc ctttgcaaaa agctatttag gtgacactat agaaggtacg         180

cctgcaggta ccggtccgga attcccatca acaagtttgt acaaaaaagc tgaacgagaa         240

acgtaaaatg atata                                                         255


<210>   242

<211>   300

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST13

<400>   242
tgggcaaacc aagacagcta aagatctctc acctaccaaa caatgccccc ctgcaaaaaa          60

taaattcata taaaaaacat acagataacc atctgcggtg ataaattatc tctggcggtg         120

```
ttgacataaa taccactggc ggtgatactg agcacatcag caggacgcac tgaccaccat      180

gaaggtgacg ctcttaaaaa ttaagccctg aagaagggca gcattcaaag cagaaggctt      240

tggggtgtgt gatacgaaac gaagcattgg gatcatcaca agtttgtaca aaaaagctga      300
```

<210>   243

<211>   120

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST14

<400>   243
```
tgccggccac gatgcgtccg gcgtagagga tcgagatctc gatcccgcga aattaatacg       60

actcactata gggagaccac aacggtttcc ctctagatca caagtttgta caaaaaagct      120
```

<210>   244

<211>   204

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST15

<220>

<221>   misc_feature

<222>   (1)..(1)

<223>   'n' can be any nucleotide (A, T, C, G or U)


<220>

<221>   CDS

<222>   (106)..(120)

<223>


<400>   244

```
natcgagatc tcgatcccgc gaaattaata cgactcacta tagggagacc acaacggttt      60

ccctctagaa ataattttgt ttaactttaa gaaggagata tacat atg tcc cct ata     117
                                                     Met Ser Pro Ile
                                                     1

cta ggttattgga aaattaaggg ccttgtgcaa cccactcgac ttcttttgga            170
Leu
5

atatcttgaa gaaaaatatg aagagcattt gtat                                 204
```

<210> 245

<211> 5

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST15

<220>

<221> misc_feature

<222> (1)..(1)

<223> may be any nucleotide

<400> 245

```
Met Ser Pro Ile Leu
1               5
```

<210> 246

<211> 153

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST15

<220>

<221> CDS

<222> (70)..(99)

<223>

<400> 246
cagggctggc aagccacgtt tggtggtggc gaccatcctc caaaatcgga tctggttccg    60

cgtccatgg tcg aat caa aca agt ttg tac aaa aaa gct gaacgagaaa         109
          Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
          1               5                   10

cgtaaaatga tataaatatc aatatattaa attagatttt gcat                     153


<210>   247

<211>   10

<212>   PRT

<213>   Artificial Sequence


<220>

<223>   pDEST15

<400>   247

Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1               5                   10


<210>   248

<211>   153

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST16 multiple cloning site

<220>

<221>   CDS

<222>   (100)..(111)

<223>


<400>   248
gatctcgatc ccgcgaaatt aatacgactc actataggga gaccacaacg gtttccctct    60

agaaataatt ttgtttaact ttaagaagga gatatacat atg agc gat aaa          111
                                            Met Ser Asp Lys
                                            1

attattcacc tgactgacga cagttttgac acggatgtac tc                    153


<210>  249

<211>  4

<212>  PRT

<213>  Artificial Sequence


<220>

<223>  pDEST16 multiple cloning site

<400>  249

Met Ser Asp Lys
1


<210>  250

<211>  153

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST16 multiple cloning site

<220>

<221>  CDS

<222>  (82)..(123)

<223>


<400>  250
gtggcggcaa ccaaagtggg tgcactgtct aaaggtcagt tgaaagagtt cctcgacgct     60

aacctggccg gttctggttc t ggt gat gac gat gac aag atc aca agt ttg     111
                         Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu
                         1               5                   10

tac aaa aaa gct gaacgagaaa cgtaaaatga tataaatatc                     153
Tyr Lys Lys Ala


<210>  251

<211>  14

```
<212>  PRT

<213>  Artificial Sequence


<220>

<223>  pDEST16 multiple cloning site

<400>  251

Gly Asp Asp Asp Asp Lys Ile Thr Ser Leu Tyr Lys Lys Ala
1               5                   10


<210>  252

<211>  153

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST17 multiple cloning site

<220>

<221>  CDS

<222>  (94)..(153)

<223>



<400>  252
gatcccgcga aattaatacg actcactata gggagaccac aacggtttcc ctctagaaat      60

aattttgttt aactttaaga aggagatata cat atg tcg tac tac cat cac cat     114
                                    Met Ser Tyr Tyr His His His
                                    1               5

cac cat cac ctc gaa tca aca agt ttg tac aaa aaa gct                  153
His His His Leu Glu Ser Thr Ser Leu Tyr Lys Lys Ala
        10                  15                  20


<210>  253

<211>  20

<212>  PRT

<213>  Artificial Sequence
```

<220>

<223> pDEST17 multiple cloning site

<400> 253

Met Ser Tyr Tyr His His His His His His Leu Glu Ser Thr Ser Leu
1               5                   10                  15

Tyr Lys Lys Ala
            20

<210> 254

<211> 420

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST18 p10 Promoter

<400> 254
gaagacctcg gccgtcgcgg cgcttgccgg tggtgctgac cccggatgaa gtggttcgca      60

tcctcggttt tctggaaggc gagcatcgtt tgttcgccca ggactctagc tatagttcta     120

gtggttggct acgtatcgag caagaaaata aaacgccaaa cgcgttggag tcttgtgtgc     180

tattttaca aagattcaga aatacgcatc acttacaaca aggggggacta tgaaattatg     240

cattttgagg atgccgggac ctttaattca acccaacaca atatattata gttaaataag     300

aattatttat caaatcattt gtatattaat taaaatacta tactgtaaat tacattttat     360

ttacaatgag gatcatcaca agtttgtaca aaaaagctga acgagaaacg taaaatgata     420

<210> 255

<211> 300

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST19 39K Promoter

<400> 255
ggtgacgccg tcatctttcc attgtaacgt aaatggcaac ttgtagatga acgcgctgtc      60

aaaaaaccgg ccagtttctt ccacaaactc gcgcacggct gtctcgtaaa cttttgcgtc     120

```
gcaacaatcg cgatgacctc gtggtatgga aatttttct aaaaaagtgt cgttcatgtc      180

ggcggcggcg ttcgcgctcc ggtacgcgcg acgggcacac agcaggacag ccttgtccgg      240

ctcgattatc ataaacaatc ctgcaggcat gcaagctgga tcatcacaag tttgtacaaa      300
```

<210> 256

<211> 204

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (163)..(174)

<223>


```
<400> 256
ggctacgtat actccggaat attaatagat catggagata attaaaatga taaccatctc      60

gcaaataaat aagtatttta ctgttttcgt aacagttttg taataaaaaa acctataaat     120

attccggatt attcataccg tcccaccatc gggcgcggat cc atg gcc cct ata        174
                                              Met Ala Pro Ile
                                              1

ctaggttatt ggaaaattaa gggccttgtg                                      204
```

<210> 257

<211> 4

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST20 Polyhedron Promoter

<400> 257

```
Met Ala Pro Ile
1
```

<210> 258

<211> 95

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST20 Polyhedron Promoter

<220>

<221> CDS

<222> (1)..(48)

<223>


```
<400>  258
tcg gat ctg gtt ccg cgt cat aat caa aca agt ttg tac aaa aaa gct        48
Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1               5                   10                  15

gaacgagaaa cgtaaaatga tataaatatc aatatattaa attagat                     95
```

<210> 259

<211> 16

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST20 Polyhedron Promoter

<400> 259

```
Ser Asp Leu Val Pro Arg His Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1               5                   10                  15
```

<210> 260

<211> 204

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST21 Promoter region

<220>

<221> CDS

<222> (163)..(180)

<223>


<400> 260
ttgccgcttt gctatcaagt ataaatagac ctgcaattat taatcttttg tttcctcgtc      60

attgttctcg ttccctttct tccttgtttc tttttctgca caatatttca agctatacca     120

agcatacaat caactccaag cttgaagcaa gcctcctgaa ag atg aag cta ctg        174
                                              Met Lys Leu Leu
                                               1

tct tct atcgaacaag catgcgatat ttgc                                    204
Ser Ser
5


<210> 261

<211> 6

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST21 Promoter region

<400> 261

Met Lys Leu Leu Ser Ser
1               5


<210> 262

<211> 102

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST21 Promoter region

<220>

<221>   CDS

<222>   (37)..(78)

<223>


<400>   262
gaagagagta gtaacaaagg tcaaagacag ttgact gta tcg tcg agg tcg aat        54
                                         Val Ser Ser Arg Ser Asn
                                         1               5

caa aca agt ttg tac aaa aaa gct gaacgagaaa cgtaaaatga tata            102
Gln Thr Ser Leu Tyr Lys Lys Ala
            10


<210>   263

<211>   14

<212>   PRT

<213>   Artificial Sequence


<220>

<223>   pDEST21 Promoter region

<400>   263

Val Ser Ser Arg Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1               5                   10


<210>   264

<211>   255

<212>   DNA

<213>   Artificial Sequence


<220>

<223>   pDEST22 Promoter region

<220>

<221>   CDS

<222>   (217)..(228)

<223>

<400> 264
```
acgcacacta ctctctaatg agcaacggta tacggccttc cttccagtta cttgaatttg    60

aaataaaaaa agtttgccgc tttgctatca agtataaata gacctgcaat tattaatctt   120

ttgtttcctc gtcattgttc tcgttccctt tcttccttgt ttcttttct gcacaatatt    180

tcaagctata ccaagcatac aatcaactcc aagctt atg ccc aag aag             228
                                          Met Pro Lys Lys
                                          1

aagcggaagg tctcgagcgg cgccaat                                       255
```

<210> 265

<211> 4

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST22 Promoter region

<400> 265

```
Met Pro Lys Lys
1
```

<210> 266

<211> 82

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST22

<220>

<221> CDS

<222> (28)..(66)

<223>


<400> 266
```
gaagataccc caccaaaccc aaaaaaa gag ggt ggg tcg aat caa aca agt ttg    54
                                Glu Gly Gly Ser Asn Gln Thr Ser Leu
```

<pre>
                              1                    5
tac aaa aaa gct gaacgagaaa cgtaaa                                    82
Tyr Lys Lys Ala
10
</pre>

<210> 267

<211> 13

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST22

<400> 267

<pre>
Glu Gly Gly Ser Asn Gln Thr Ser Leu Tyr Lys Lys Ala
1               5                   10
</pre>

<210> 268

<211> 102

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST23 T7 promoter

<400> 268
<pre>
atcccgcgaa attaatacga ctcactatag ggagaccaca acggtttccc tctagatcac    60

aagtttgtac aaaaaagctg aacgagaaac gtaaaatgat at                      102
</pre>

<210> 269

<211> 153

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST23 T7 promoter

<220>

<221> CDS

<222> (61)..(126)

<223>

<400> 269
tttttatgca aaatctaatt taatatattg atatttatat cattttacgt ttctcgttca        60

gct ttc ttg tac aaa gtg gtg att atg tcg tac tac cat cac cat cac        108
Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His
1               5                   10                  15

cat cac ctc gat gag caa taactagcat aaccccttgg ggcctct                  153
His His Leu Asp Glu Gln
            20

<210> 270

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST23 T7 promoter

<400> 270

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Tyr Tyr His His His His
1               5                   10                  15

His His Leu Asp Glu Gln
            20

<210> 271

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST24 T7 promoter

<400> 271
atcgagatct cgatcccgcg aaattaatac gactcactat agggagacca caacggtttc        60

cctctagatc acaagtttgt acaaaaaagc tgaacgagaa ac                          102

<210> 272

<211> 102

<212> DNA

<213> Artificial Sequence


<220>

<223> pDEST24 T7 promoter

<220>

<221> CDS

<222> (22)..(60)

<223>


<400> 272
tcattttacg tttctcgttc a gct ttc ttg tac aaa gtg gtg att atg tcc          51
                         Ala Phe Leu Tyr Lys Val Val Ile Met Ser
                         1               5                   10

cct ata cta ggttattgga aaattaaggg ccttgtgcaa cccactcgac tt          102
Pro Ile Leu


<210> 273

<211> 13

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST24 T7 promoter

<400> 273

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Pro Ile Leu
1               5                   10


<210> 274

<211> 102

<212> DNA

<213> Artificial Sequence

<220>

<223>  pDEST25 T7 promoter

<220>

<221>  misc_feature

<222>  (1)..(1)

<223>  'n' can be any nucleotide (A, T, C, G or U)


<400>  274
nagatctcga tcccgcgaaa ttaatacgac tcactatagg gagaccacaa cggtttccct      60

ctagatcaca agtttgtaca aaaaagctga acgagaaacg ta                        102


<210>  275

<211>  102

<212>  DNA

<213>  Artificial Sequence


<220>

<223>  pDEST25 T7 promoter

<220>

<221>  CDS

<222>  (19)..(60)

<223>


<400>  275
ttttacgttt ctcgttca gct ttc ttg tac aaa gtg gtg att atg agc gat      51
                    Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp
                    1               5                   10

aaa att att cacctgactg acgacagttt tgacacggat gtactcaaag cg           102
Lys Ile Ile


<210>  276

<211>  14

<212>  PRT

<213> Artificial Sequence

<220>

<223> pDEST25 T7 promoter

<400> 276

Ala Phe Leu Tyr Lys Val Val Ile Met Ser Asp Lys Ile Ile
1               5                   10

<210> 277

<211> 306

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST26 CMV promoter

<220>

<221> CDS

<222> (238)..(297)

<223>

<400> 277
ttgacgtcaa tgggagtttg ttttggcacc aaaatcaacg ggactttcca aaatgtcgta       60

acaactccgc cccattgacg caaatgggcg gtaggcgtgt acggtgggag gtctatataa      120

gcagagctcg tttagtgaac cgtcagatcg cctggagacg ccatccacgc tgttttgacc      180

tccatagaag acaccgggac cgatccagcc tccggactct agcctaggcc gcggacc        237

atg gcg tac tac cat cac cat cac cat cac tct aga tca aca agt ttg         285
Met Ala Tyr Tyr His His His His His His Ser Arg Ser Thr Ser Leu
1               5                   10                  15

tac aaa aaa gct gaacgagaa                                               306
Tyr Lys Lys Ala
            20

<210> 278

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> pDEST26 CMV promoter

<400> 278

Met Ala Tyr Tyr His His His His His His Ser Arg Ser Thr Ser Leu
1               5                   10                  15

Tyr Lys Lys Ala
          20

<210> 279

<211> 255

<212> DNA

<213> Artificial Sequence

<220>

<223> pDEST27 promoter

<220>

<221> misc_feature

<222> (1)..(1)

<223> 'n' can be any nucleotide (A, T, C, G or U)

<220>

<221> CDS

<222> (139)..(153)

<223>

<400> 279
nacggtggga ggtctatata agcagagctc gtttagtgaa ccgtcagatc gcctggagac      60

gccatccacg ctgttttgac ctccatagaa gacaccggga ccgatccagc tccggactc     120

tagcctaggc cgcggacc atg gcc cct ata cta ggttattgga aaattaaggg     173
                     Met Ala Pro Ile Leu
                     1               5

ccttgtgcaa cccactcgac ttcttttgga atatcttgaa gaaaaatatg aagagcattt     233

gtatgagcgc gatgaaggtg at                                                255

<210>    280

<211>    5

<212>    PRT

<213>    Artificial Sequence


<220>

<223>    pDEST27 promoter

<220>

<221>    misc_feature

<222>    (1)..(1)

<223>    'n' can be any nucleotide (A, T, C, G or U)

<400>    280

Met Ala Pro Ile Leu
1                   5


<210>    281

<211>    87

<212>    DNA

<213>    Artificial Sequence


<220>

<223>    pDEST27 promoter

<220>

<221>    CDS

<222>    (37)..(75)

<223>


<400>    281
tttggtggtg gcgaccatcc tccaaaatcg gatctg gtt ccg cgt tct aga tca     54
                                         Val Pro Arg Ser Arg Ser
                                         1               5

aca agt ttg tac aaa aaa gct gaacgagaaa cg                            87
Thr Ser Leu Tyr Lys Lys Ala

10

<210> 282

<211> 13

<212> PRT

<213> Artificial Sequence


<220>

<223> pDEST27 promoter

<400> 282

```
Val Pro Arg Ser Arg Ser Thr Ser Leu Tyr Lys Lys Ala
1               5                   10
```

<210> 283

<211> 405

<212> DNA

<213> Artificial Sequence


<220>

<223> pEXP501

<400> 283
```
agagctcgtt tagtgaaccg tcagatcgcc tggagacgcc atccacgctg ttttgacctc      60
catagaagac accgggaccg atccagcctc cggactctag cctaggccgc ggagcggata     120
acaatttcac acaggaaaca gctatgacca ttaggcctat ttaggtgaca ctatagaaca     180
agtttgtaca aaaaagcagg ctggtaccgg tccggaattc ccgggatatc gtcgacgagc     240
tcactagtcg gcggccgctc tagagtatcc ctcgaggggc ccaagcttac gcgtacccag     300
ctttcttgta caaagtggtc cctatagtga gtcgtattat aagctaggca ctggccgtcg     360
ttttacaacg tcgtgactgg gaaaactgct agcttgggat ctttg                    405
```

<210> 284

<211> 153

<212> DNA

<213> Artificial Sequence

<220>

<223>   His6-CAT

<220>

<221>   CDS

<222>   (31)..(153)

<223>


<400>   284
cggataacaa tttcacacag gaaacagacc atg tcg tac tac cat cac cat cac          54
                                 Met Ser Tyr Tyr His His His His
                                  1                   5

cat cac ggc atc aca agt ttg tac aaa aaa gca ggc ttt gaa aac ctg          102
His His Gly Ile Thr Ser Leu Tyr Lys Lys Ala Gly Phe Glu Asn Leu
    10                  15                  20

tat ttt caa gga acc atg gag aaa aaa atc act gga tat acc acc gtt          150
Tyr Phe Gln Gly Thr Met Glu Lys Lys Ile Thr Gly Tyr Thr Thr Val
25                  30                  35                  40

gat                                                                      153
Asp


<210>   285

<211>   41

<212>   PRT

<213>   Artificial Sequence


<220>

<223>   His6-CAT

<400>   285

Met Ser Tyr Tyr His His His His His His Gly Ile Thr Ser Leu Tyr
1                   5                   10                  15


Lys Lys Ala Gly Phe Glu Asn Leu Tyr Phe Gln Gly Thr Met Glu Lys
            20                  25                  30


Lys Ile Thr Gly Tyr Thr Thr Val Asp
            35                  40

SKGF_DC1:69166.1